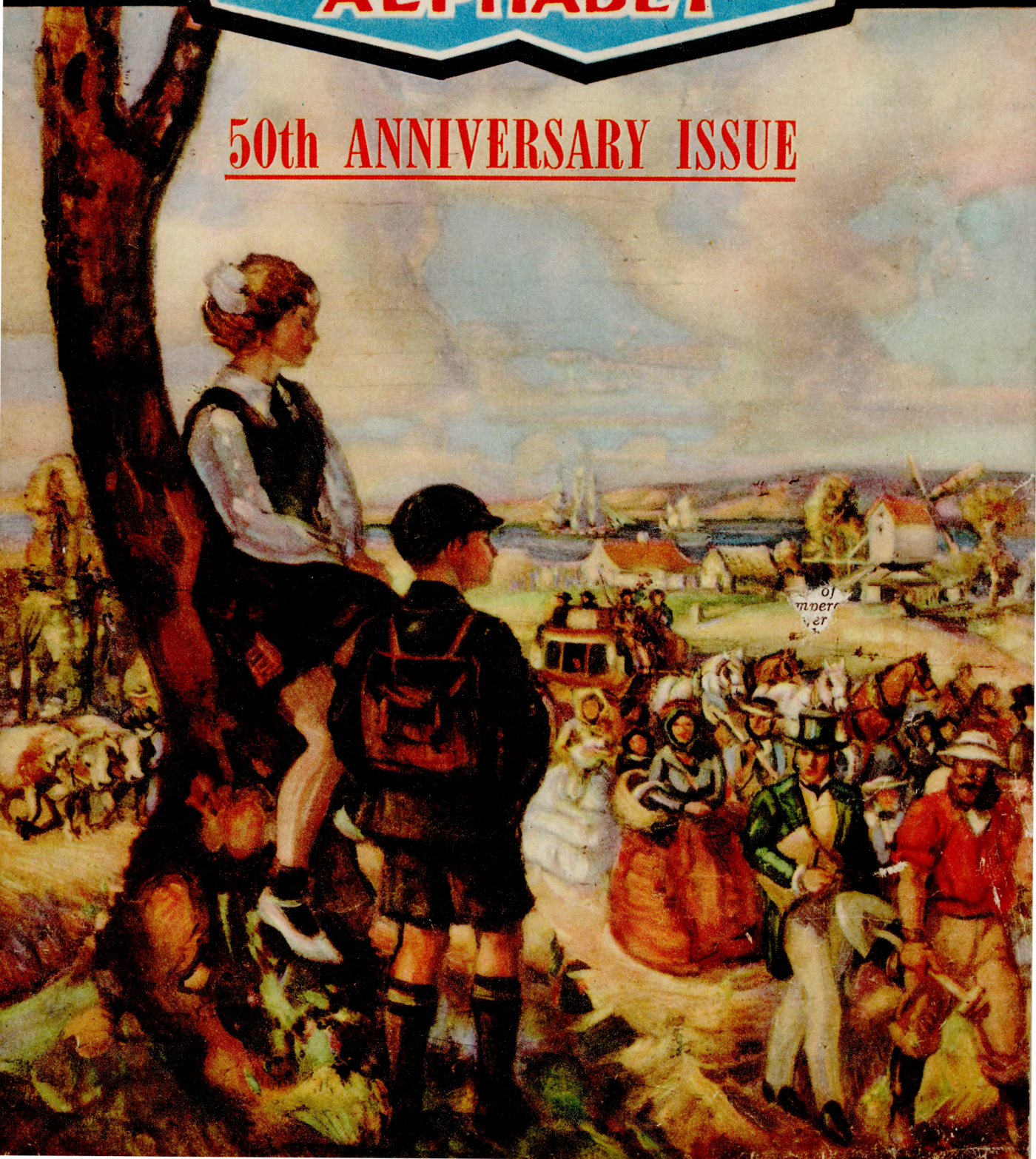
1962
EDITION

The COMMONWEALTH TRADES ALPHABET

WORLD
COPY-
RIGHT

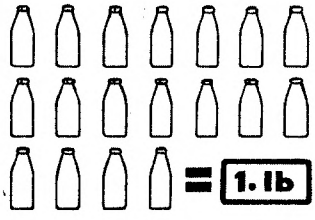
50th ANNIVERSARY ISSUE



The ABC of good things to eat AUSTRALIAN BUTTER and CHEESE. They make every meal a tasty treat As everyone agrees.

DAIRY FOODS
NATURE'S FINEST

Imagine trying to eat your breakfast cereal without milk, your toast without butter, your lunchtime sandwiches without butter and cheese. Not only would our meals become less interesting, but our health would suffer, too, if we were deprived of our wonderful Australian dairy foods. They give us proteins to build strong bodies, essential fats for energy and winter-warmth, plus minerals and vitamins for sound teeth and bones and resistance to infections.

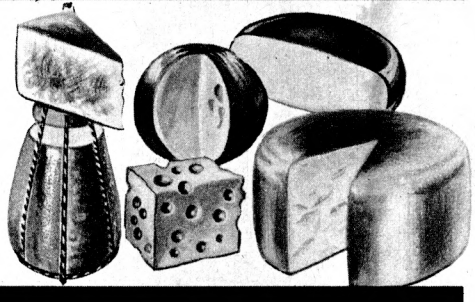


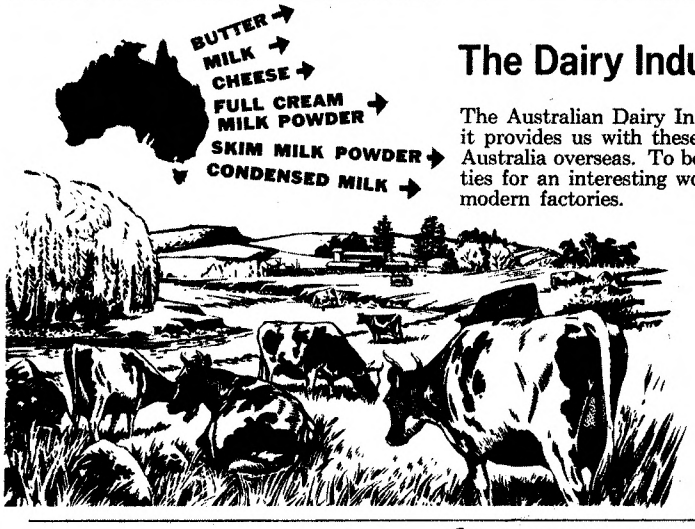
BUTTER—A natural health food

Did you know that it takes the cream from 18 pints of milk to make a single pound of our delicious Australian butter? Nothing is added except a small quantity of salt—the colour and flavour come from Nature. Butter is a highly concentrated food, and our sunny climate and green pastures produce butter of the world's finest quality.

CHEESE—One of our oldest foods

The original forms of cheese were very simple and had to be eaten fresh. Nowadays, cheese production is scientific and enormous quantities are produced in Australia for the home market and for export. Many varieties are now being made but by far the most important is natural Cheddar. As you see, it takes a whole gallon of milk to make a pound of Cheddar, you can see why cheese is our most concentrated daily food—even richer in protein than meat.





The Dairy Industry—and you

The Australian Dairy Industry is very important to every one of us, because it provides us with these magnificent foods, and its exports earn money for Australia overseas. To boys and girls leaving school it offers many opportunities for an interesting worthwhile career, on green sunny farms, or in bright modern factories.

To discover more about Australian butter and cheese and to get colour illustrations and many interesting facts for your school project, write for your copy of "The Story of the Australian Dairy Industry and its Products" to the

PROJECT DEPARTMENT

AUSTRALIAN DAIRY PRODUCE BOARD,

406 Lonsdale Street, Melbourne, Victoria

The Commonwealth Trades Alphabet 1962

(World Copyright)

1,000,000 copies printed for the publisher, "The Commonwealth Trades Alphabet Pty. Ltd.," 116 Mount Street, North Sydney, by Conpress Printing Ltd., 61-63 O'Riordan St., Alexandria. Established in New Zealand in 1913 and in Australia in 1921 by Robert Westfield. Re-established in Australia in 1947 and in New Zealand in 1949, and established in Canada in 1949, in Great Britain in 1952, and South Africa in 1957 by Alan Davis. The first Norwegian edition was published in 1956. The first Danish edition was published in 1957.

Head Office:

The Commonwealth Trades Alphabet Pty. Ltd.,

116 Mount Street, North Sydney.

Phone: 92-0734

In 1961, 1,000,000 copies of the Australian edition were printed. These were apportioned among the States as follows:

N.S.W.	**397,000**
Victoria	**245,000**
Queensland	**168,000**
South Australia	**85,000**
Western Australia	**70,000**
Tasmania	**35,000**

Orders for the 1961 edition totalled well over the million, and we have retained the number printed at 1,000,000.

Ace Wrapping, Pioneer Packing Services, Bryce Ltd., Boans Ltd., Mayne Nickless and Rudders Ltd. do the packing and distribution of the Alphabet.

The Circulation Audit Board checks the printing and distribution of the Alphabet, as well as the applications from the schools, and then issues the Circulation Certificate.

Annual distribution of the Alphabet:

Australia, 1,000,000.

New Zealand, 250,000.

Great Britain, 1,100,000.

South Africa — European, 250,000 (125,000 in Afrikaans, 125,000 in English).

South Africa — Bantu, 300,000 (Zulu, Xhosa, Sotho).

The Alphabets are sent only to those schools whose headmasters send in one of our Application Forms duly signed.

Editor: L. G. Kendall, B.A.,

Ex-Superintendent of Primary Education in N.S.W.

Foreword by the Hon. E. Wetherell, M.L.A., Minister for Education.

SINCE the end of the Second World War we have witnessed a remarkable expansion of the Australian economy. The tremendous industrial and commercial progress that marked the 1950's shows every sign of continuing during the present decade. Our population continues to rise and with it the demand for more goods and services, more housing, more transport, more utilities. Obviously we cannot continue to expand without encountering many difficulties and problems, but I believe that the measure of our true worth is the manner in which we tackle and solve these problems.

Although Australia can still be regarded as a young country she has already made her mark in the world. We must always remember that mere size or wealth or production does not necessarily make a country great. Rather is it the example we set, the sense of values we preserve, the spirit in which we go about our daily tasks. This spirit of initiative and generosity and fair play is recognised in the Australian people in every walk of life. It is something to be proud of, something to foster.

I feel that the story of Australian industry as told in the Commonwealth Trades Alphabet exemplifies the spirit of which I speak. The message of the Alphabet is one for all schoolchildren.

Em Wetherell

Minister for Education

Foreword by the Premier of Western Australia, Hon. David Brand, M.L.A.

THE pressure of world events makes it imperative that Australia should offer a high level of leadership in the Indian Ocean and Pacific areas during the remainder of this century.

The extent to which we do this may well be the deciding factor in our own future.

We must show leadership in trade by taking proper advantage of our nearness to vast markets.

We must show leadership in thought so that other people may learn to look to us for ideas in developing their own future.

This, in turn, means that we must show leadership in the development of our own country so that its empty spaces can feed hungry people and its way of life can be an inspiration.

I hope that you, the readers of "The Commonwealth Trades Alphabet" will learn to think seriously on these questions because they are your task for the future.

That task will be a tremendous challenge to you but if you live up to it, your lives will be very full and very satisfying.

So, while you are at school, prepare yourselves well. Absorb all the knowledge you can while you have time to do so.

I am confident that the Australia which we of our generation hand on to you will become, in your hands, a great nation.

David Brand

Premier.

Foreword by the Hon. Henry E. Bolte, M.L.A., Premier of Victoria.

WE have now entered the second year of the decade of the 60's and the years ahead give great promise of further outstanding developments in the growth and expansion of Victoria and Australia.

To help tell the story of this development we rely on such publications as the Commonwealth Trades Alphabet.

Presented in graphic, but in an easily read fashion, the Commonwealth Trades Alphabet is particularly valuable for school children to learn and understand what will be in store for them when they leave school and enter the world at large.

The story of Victoria's growth and expansion is a fascinating and exciting one with many interesting chapters associated with success.

The Commonwealth Trades Alphabet has always been read with great interest by school children in Victoria and we look forward to its continued distribution in this State.

Henry E Bolte.

Premier.

Foreword by the Hon. E. Reece, Premier of Tasmania.

ONCE more it gives me pleasure to write a foreword to The Commonwealth Trades Alphabet. This valuable publication is popular with school boys and girls because it is of great help in the planning of projects, and it plays a useful role in summarising the tremendous industrial advancement of the Australian Commonwealth.

I remember when I used to get my annual copy of the Alphabet as a school boy that it was a much smaller publication than it is to-day. Now it is distributed to a million Australian school children, while nearly two million pupils of schools in other countries get copies, also.

I hope that the 1962 edition will be an outstanding success, and that it will be a source of encouragement to all who read it.

Eric Reece

Premier.

NOTICE

● In each parcel of Alphabets that we send to the Schools for distribution there is a letter addressed to the Principal of the School. At the end of this letter the following notice appears:—

"If you desire to make any change in your order for copies of the Alphabet, please complete the ORDER FORM hereunder, *putting the name and address of your School on the back,* and return it to us as early as possible."

By doing this, you will enable us to keep an up-to-date record of your requirements. N.B. As the total number of Alphabets ordered by the schools exceeds the number that we print (1,000,000) we have to reduce the orders pro-rata.

GIFTS TO SCHOOLS

Valuable gifts amounting to £647/10/- will be given to the schools whose pupils participate in the Alphabet competitions in Projects, Essays, and Handwriting.

The following points will be considered in allotting the gifts:

(a) The number of entries received from the school in proportion to its size.

(b) The variety of topics used in the projects entered. The school with the greater variety will gain more than the school submitting a number of projects on the same topic.

(c) The quality of entries received from a school.

(d) The arrangements of the pupils' entries. When being forwarded, the entries in each section in Essays and Handwriting should be tied in separate bundles — Essays A to D, and Handwriting (infants to D).

(e) In general, more points are given for projects than for essays and more for essays than for handwriting.

(f) Gifts may be awarded for good work in any particular competition, as well as for good work in the competitions as a whole.

Girls and Boys. Whatever your age, you have a chance to win one of the hundreds of prizes offered. See pages 4, 42, 44.

The Commonwealth as it is Today

By Don Taylor — Editor of "New Commonwealth" (London).

INDIAN and Pakistani air hostesses on Westminster Bridge, London, while on a training course with British Overseas Airways Corporation.

THERE are something like 670,000,000 people in the Commonwealth of Nations, and that is roughly one-quarter of all mankind. It is clear that such a great number of people can have a powerful influence in the world, particularly when they come from practically every race and religion in existence, and yet have certain beliefs in common.

Just think what the Commonwealth really represents. Some of the countries like Britain, Canada, Australia and New Zealand are industrially developed. Others have not yet got many industries or great cities. In short, the Commonwealth represents modern man at most stages of development under all the varying conditions which exist in most parts of the world.

Many of the foods and raw materials which modern man needs are produced inside the Commonwealth. Many of the ideas which interest the minds of men are also produced in the Commonwealth. You could say that it can speak with the voice of Asia, and the voice of Europe, the voice of the Americas, and the voice of Africa and Australia.

It is, therefore, an extremely important family of nations. But, you may well ask, what does it really do? To answer that, it is best to take a look back into history and see how it all came about.

All the independent members of the Commonwealth were, at one time or another, administered by Britain. Their trade was linked with Britain. They developed with similar ideas on education, sport, and many other things.

HERE students from the United Kingdom talk to others from West Africa, India, and the Federation of Malaya in the Common Room of the University College of Swansea, South Wales.

When It All Began

As far back as the 18th century, many British people felt strongly that all these countries dependent on her should gradually progress towards complete independence, towards government by themselves, and this became the official policy of Britain. Canada was the first nation to reach that goal, followed by Australia, New Zealand, and South Africa. It was in Adelaide, in 1884, that the Earl of Rosebery described the Empire in words that have now become historic, as "a commonwealth of nations."

Today there are twelve full sovereign members: the United Kingdom, Canada, Australia, New Zealand, India, Pakistan, Ceylon, The Federation of Malaya, Ghana, Nigeria, Cyprus, and Sierra Leone. The Federation of Rhodesia and Nyasaland has a special

(CONTINUED ON PAGE 25)

How to win an Alphabet Prize

Follow these simple rules.

(A): Send your entry to "The Commonwealth Trades Alphabet" as directed on Page **44 for your State.**

(B): Your entry must be sent BEFORE 1st October, 1962.

(C): Attach a label from the product your entry refers to, or, if it has no label, an advertisement or article about it, or attach a cutting from the literature received from one of the firms.

(D): WRITE THE FOLLOWING PARTICULARS ON YOUR ENTRY:

(1) Your full name and your home address.
(2) The full name and postal address of your school, including State.
(3) Your age in years on 1st October, 1962.
(4) The section you are entering.
(5) Get your teacher to sign your entry.

(E): WHERE TO WRITE YOUR PARTICULARS:

Essays: On the back of last page.
Handwriting: On the back of last page.
Junior Projects: On top right-hand corner of picture chart.
Senior Projects: On the first inside page of the book.

NOTES:

(A): The judge's decision will, of course, be final, and the complete list of prize-winners will be posted to each school from which entries in the competition are received.

(B): Prizes will take the form of orders on suppliers, and these will be forwarded to schools as soon as possible after the judging has been completed.

First of all, read the rules on this page. Next, find out how old you will be on the 1st October, 1962. Now look for the number of your age printed below. If, for example, you will be 10 years old, just draw a circle around the figure 10 and you will see that you are in SECTION B.

Now read the simple instructions telling you what to do.

SECTION TO ENTER

6 years old	Infants
7 and 8 years old	Section A
9 and 10 years old	Section B
11 and 12 years old	Section C
13 years and over	Section D

If you are in Section Infants or A, open your "Alphabet" at the first page, then write or script print **all the words in capitals in each rhyme.**

Thus you would start with the inside front cover rhyme and write AUSTRALIAN BUTTER CHEESE and then write all the words in capitals in every rhyme under the letters from A to Z, and finish with the rhyme on the back cover.

You may use either a pen or pencil or a ball-point pen.

Here's what you do if you are in Section B, C, D. Write out the first line of each of the rhymes on the pages and covers of the "Alphabet," and also all the words in CAPITAL letters in the rhymes. You would commence by writing, "The ABC of good things to eat, **AUSTRALIAN BUTTER CHEESE,**" and then write the first line and all the words in capitals in all the other rhymes, finishing with the rhyme on the back cover.

Use a pen or a ball-point pen, and be sure to write; do not print.

First of all, read the rules on this page. Next, find out what age you will be on the 1st October, 1962, then look for your age printed below. If, for example, you will be 9 years old, just draw a circle around the figure 9, and you will see that you are in SECTION B.

Now read the simple instructions telling you what to do.

SECTION TO ENTER

If you are:

7 or 8 years	Section A
9 or 10 years	Section B
11 or 12 years	Section C
13 or more years	Section D

ESSAYS TO WRITE

If you are in SECTION A, B, or C, write an essay one to two pages in length **about any product described in the "Alphabet,"** on the covers, or on the pages where there is a rhyme at the top.

If you are in Section D: Write two or three pages about the development of Australian industry, either Primary or Secondary, with particular reference to those products or industries described in the Alphabet.

You may use information obtained from a study of the Alphabet and the literature supplied by firms advertising therein.

N.B. Writing and essays should be done on sheets of paper, not in exercise books.

£1295 in Prizes and Gifts to Schools

See:—Gifts to Schools . . . . . Page 2
List of Prizes . . . . . Page 44
Where to address your entry . . . . Page 44

NOTICE

The next exhibition of prize-winning entries in the C.T.A. competitions will be held from the 14th to 18th January, 1963, in the Fine Art Gallery, Anthony Hordern and Sons Ltd., Sydney.

The major prize-winners in N.S.W. will be presented with their prizes at the official opening of the exhibition at 2 p.m., Monday, 14th January, 1963.

GUIDE TO TEACHERS SENDING ENTRIES

Your assistance, as follows, would be appreciated:

(1) Check the particulars on the pupils' entries.
(2) Wrap separately the writing and essay entries in their sections—Infants, A, B, C, or D.
(3) Send entries to the address given on page 44 for your State.

GUIDE TO COMPETITORS

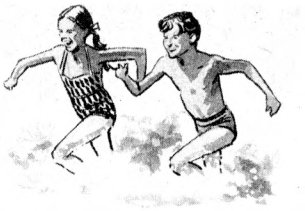
Write on your entry:

(1) Your name and age in years on 1st October, 1962.
(2) The name and full postal address of your school, including State.
(3) The section that you are entering: Infants, A, B, C, or D.

Write to the firms for literature. DO NOT WRITE to the Commonwealth Trades Alphabet

A

for active boys and girls
Busy all the day
SUGAR GIVES them ENERGY
For both work and play



An Australian sugar cane farm

One of Australia's 9,000 sugar cane farmers, Mr. A. Walker of Mackay in Queensland, says goodbye to his daughter Kathryn and her friend, Keith Edmonds, as they go to school.
Most Australian sugar cane growers own their farm. The farms are not big. The average size is 70 acres.

Published by the Colonial Sugar Refining Co. Ltd.

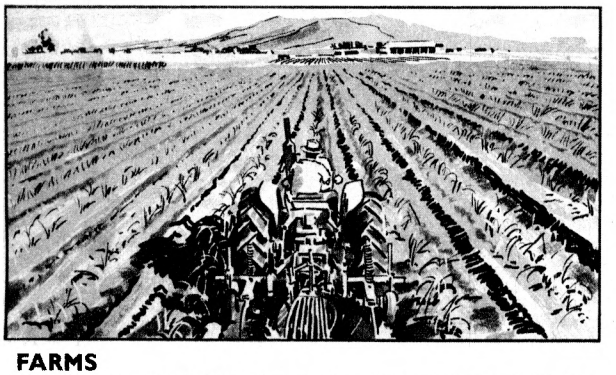
Here is the 1962 Australian Sugar Booklet. Write to the C.S.R. Company's office in your State for a copy. It costs nothing and here is how you address your envelope.

NOTE TO TEACHERS

C.S.R. will send teachers the following aids on request:

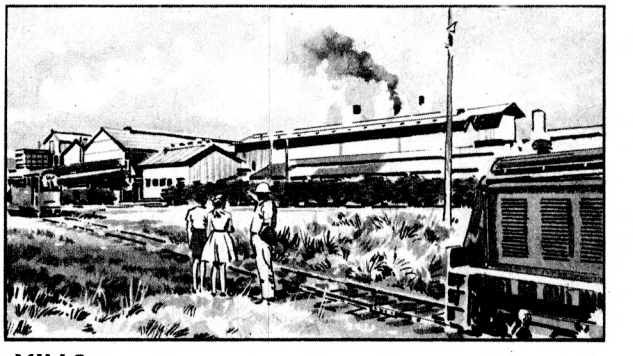
- ★ Illustrated booklets, one for each student.
- ★ Wall chart in colour on how the sugar industry works.
- ★ 16 mm. documentary colour film on loan.
- ★ Notes on the early history of sugar cane growing and milling in Australia.

N.S.W. & TAS.	Q'LD.	W.A.	VIC.	S.A.
Australian Sugar, 1962, C.S.R. Co., Box 4076, G.P.O., Sydney.	Australian Sugar, 1962, C.S.R. Co., 121 Eagle Street, Brisbane.	Australian Sugar, 1962, C.S.R. Co., 18 William Street, Perth.	Australian Sugar, 1962, C.S.R. Co., P.O. Box 40, Collins Street, Melbourne.	Australian Sugar, 1962, C.S.R. Co., Box 161C, G.P.O., Adelaide.



FARMS

Sugar cane is grown by 9,000 farmers along the tropical and sub-tropical coasts of Queensland and N.S.W. About 10 million tons of sugar cane is harvested each year. Farms are about 70 acres and are owned by the farmers.

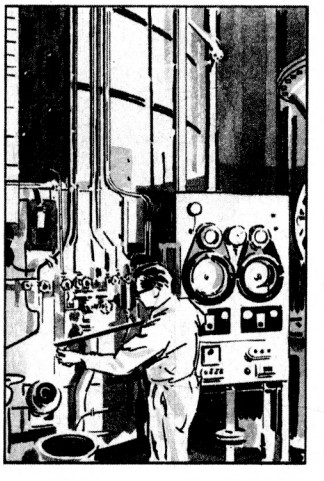


MILLS

Harvested cane is taken to raw sugar mills where sweet juice is crushed from the cane and made into raw sugar. There are 34 raw sugar mills — C.S.R. owns 7, other companies 14 and co-operatives owned by farmers 13.

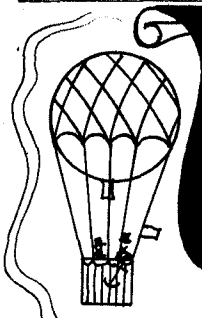
REFINERIES

Trucks take raw sugar in bulk from mills to port loading installations where it is poured into holds of ships. About half the raw sugar produced in Australia is exported, and the remainder shipped to refineries in the mainland State capital cities. At the refineries yellow-coloured raw sugar is made into sparkling white sugar which is packed and distributed to grocers and food manufacturers.

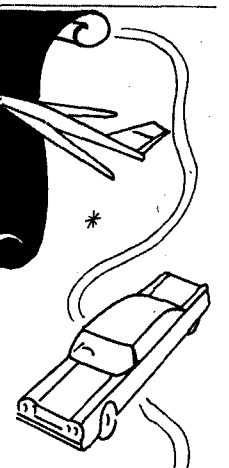


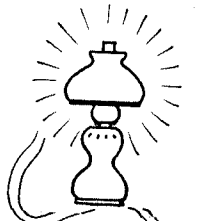
FOOD

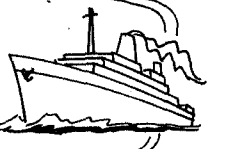
Exercise, rest, fresh air and pleasant surroundings all help to bring good health. Good foods of the right kind are necessary. You need three main kinds of food: body-building foods, like meat, fish, poultry, milk, eggs and cheese; energy foods, like bread, rice, sugar and potatoes; and protective foods, like fresh fruit and vegetables.

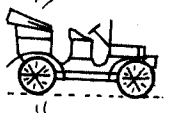


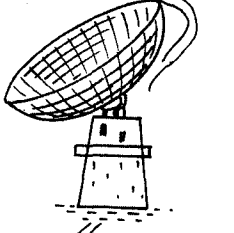
Alphabet Jubilee 1913 to 1962

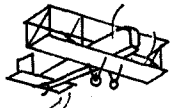


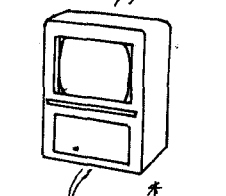


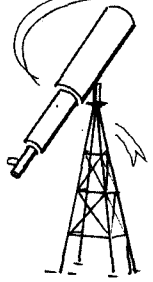


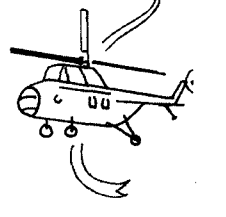












THIS year we celebrate the Jubilee of the Trades Alphabet, which was established in New Zealand in 1913 by Robert Westfield.

During those 50 years the Alphabet has developed into a valuable educational publication with a circulation of nearly 3,000,000 copies annually, in five different languages in four countries.

But let us look back over those years and take stock of the great changes that have taken place, for, during that period, despite two world wars and an economic depression, the world has made more scientific progress than it did in hundreds of years before the 20th century began. However, we can but mention briefly some of the many advances that have been made.

TRANSPORT:

We now have greatly improved bitumen and cement roads which are thronged with buses and motor cars. Narrow macadamised (broken metal) roads which were sufficient half a century ago have had to be greatly widened and improved to cope with increased traffic and greater speeds. Planes which half a century ago were scarcely to be seen and did not carry passengers now carry millions of passengers all over the world at such speeds that places that were once weeks and even months away in time are now neighbours. Big jet aeroplanes can fly from Sydney to London in 25 hours, 15 minutes' flying time. How small the world has grown! Only a short time ago planes were trying to reach the speed of 700 miles per hour (nearly 12 miles in one minute) to break the sound barrier; now a speed of over 3000 miles per hour has been reached, which is nearly one mile in one second. This is the age of jet propulsion. Also, helicopters are now a common sight. Fifty years ago they were being thought of only. Ships that used to burn coal and took seven weeks to travel from London to Sydney now use oil fuel as the means of power, and can do the journey in 24 days. Thus, in 50 years, the time has been cut in half. Submarines have developed to such an extent that one, the Polaris, has recently travelled beneath the ice at the North Pole.

SCIENCE:

Many wonders that 50 years ago could scarcely be imagined are now commonplace. We can just mention a few and suggest that you find out about them for yourselves: Radio Telescopes that can observe to the edge of the vast universe millions of light years away. Radio Telephones which enable us to talk to people on the other side of the world as if they were sitting in the next room. Space Rockets, Earth Satellites, Atom Bombs, and the wonderful Radar.

MEDICINE:

Great advances have been made through the discovery and use of radio isotopes, penicillin and many life-saving drugs, including Salk Vaccine to fight the dreaded polio, and there is the Cobalt Machine for treating deep-seated cancer. Fifty years ago diphtheria was a dreaded disease, but now it has been conquered. Also in this half-century, successful heart and brain operations have been performed that have thrilled the world. Fifty years ago the average life span was 55 for males and 48 for females; now it is 67 for males and 73 for females. Fifty years ago the world population was a little over 2000 million; now it is 3000 million.

THE HOME:

Here we now find great changes in architecture, in colour schemes, and in labour-saving machines. Refrigerators, washing machines, vacuum cleaners are considered essential nowadays, and Radio and Television are in common use where Television has been installed by governments. None of these were in use fifty years ago. Much of the drudgery in the home of 50 years ago has now been removed.

GENERAL:

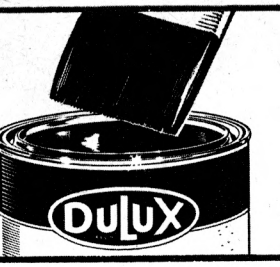
There has been vast industrial expansion throughout the world. New techniques and automation have greatly changed factory life. On the farm tractors and new machinery have resulted in a great increase in production with less labour. Earth-moving equipment has resulted in much labour saving and speedier work. Education has expanded greatly. Modern schools are a great improvement on the old type, and greater numbers are attending universities, which have increased in number. Chain stores with self-service have grown in all large cities, and electric escalators transport you quickly to higher floors.

Your grandparents will tell you of the days when none of these wonders were known, and which you take for granted, not having known anything different.

Can you in your wildest imagination dip into the future years and guess what new changes and inventions will come to pass in the next half-century? Do not try.

Plan your project or essay now. Write for further information to the firms advertising.

B *is for brush*
Whose very proud duty
Is to dip into DULUX
Spreading COLOUR AND BEAUTY.



COUNTRIES THAT HELP TO MAKE DULUX PAINTS

Although DULUX Paints are **made** in Australia, raw materials come from many parts of the world. These pictures show how India, China, Persia and the South Pacific countries contribute essential ingredients to the making of DULUX.

INDIAN FIELD WORKERS reap the flax plant, then obtain Linseed Oil by crushing the seeds between saucer-like discs.

TUNG OIL or Chinese Wood Oil for lacquers is obtained by crushing the kernel of a nut very similar to our walnut. Chinese coolies gather the nuts from trees which grow wild in South East China.

COCONUT OIL from the graceful coconut palms of the South Pacific is used to make the paint film soft and flexible. The oil is obtained by crushing the milk-white kernel of the coconut.

MUCH OF THE RED PIGMENT in DULUX Paints comes from iron oxide, found on the bed of the Persian Gulf. It's brought to the surface, cleansed and then crushed.

FREE

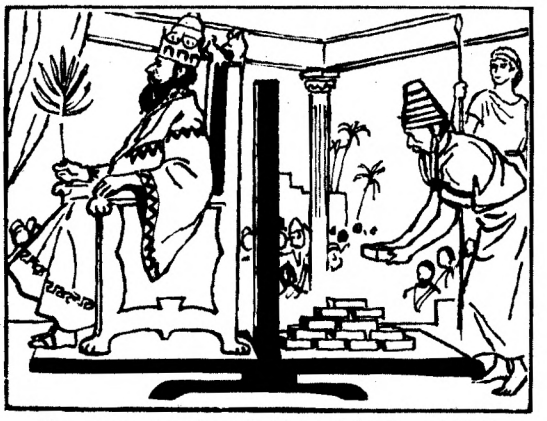
TO HELP YOU WITH YOUR COMPETITION ENTRY OR YOUR SCHOOL PROJECT

BALM Paints will send you a beautifully printed colour folder on request, entitled "The Fascinating Story of Colour". It tells how paint is made, how a rainbow is formed, explains the basic principles of colour and colour printing and shows interesting experiments to do at school or at home. *Write to BALM Paints Pty. Ltd., Box 20, P.O., CONCORD, N.S.W. Include your name and address in block letters.*

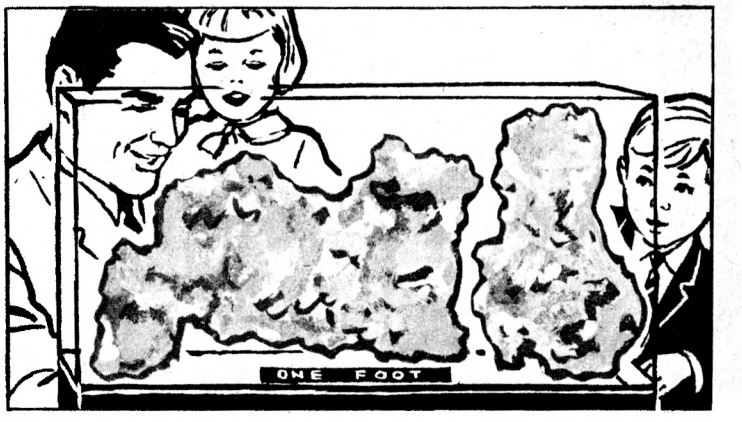
With YOUR help YOUR school can win a prize. See "School Gifts" on page 2.

C

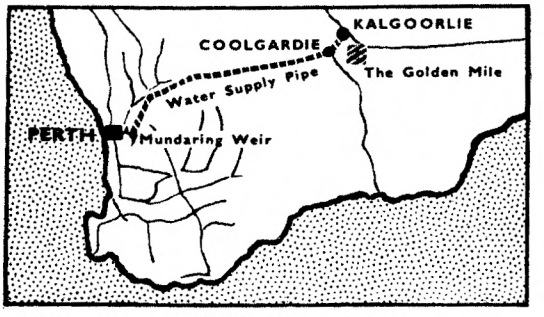
is the letter that comes after B.,
L.S. are letters that go before D.,
Put them together, they make L.S.D.,
MONEY that's BANKED IN the C.S.B.



The expression "worth his weight in gold" is believed to date back to King Solomon. In payment for ruling Jerusalem, King Solomon received his weight in gold each year.



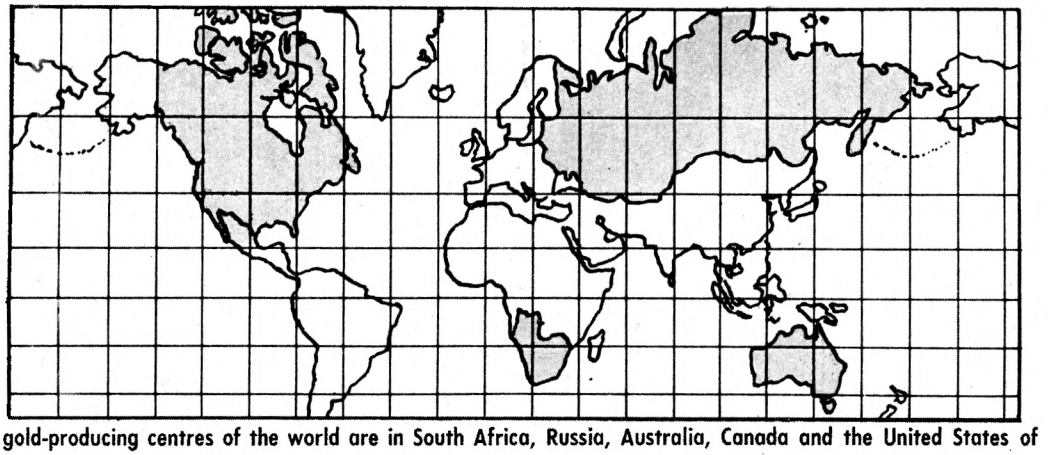
The largest nuggets ever found in Australia were the Welcome Stranger (2,520 ounces) found near Dunolly, Victoria, in 1869, and The Welcome (2,217 ounces) found at Ballarat, Victoria, in 1858.



Water for the goldfields district of Coolgardie and Kalgoorlie comes by a 350-mile pipeline from the Mundaring Weir on the Helena River, 26 miles from Perth.

To help you with your project, the Commonwealth Savings Bank has prepared a colourful book on GOLD. It is a special Golden Jubilee issue to celebrate the Bank's fiftieth birthday. In this book you can read exciting stories of gold discoveries in Australia, how a man went diving for gold in a sunken ship and other fascinating stories. Send for a copy to the address shown below.

DON'T FORGET TO PUT
YOUR NAME AND ADDRESS
ON YOUR LETTER.

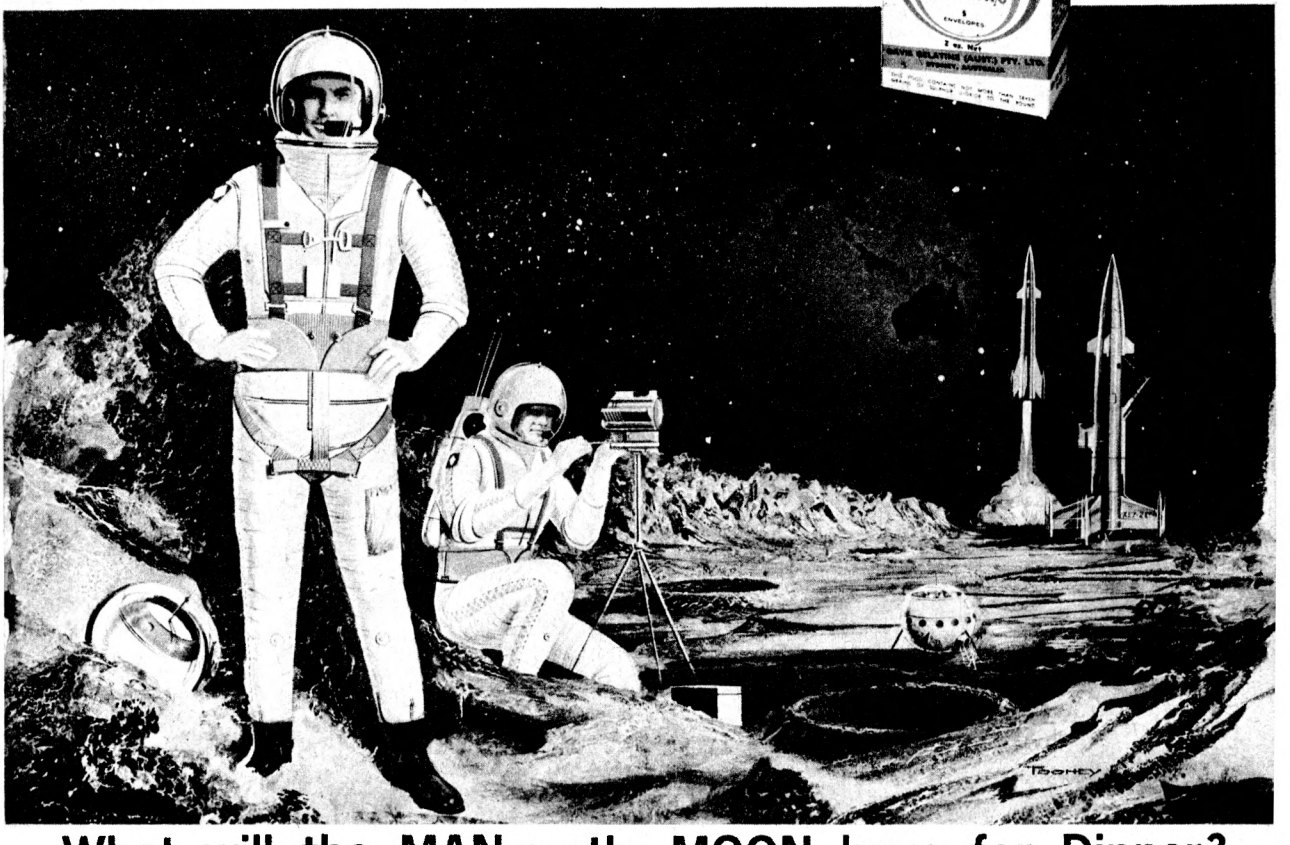


The main gold-producing centres of the world are in South Africa, Russia, Australia, Canada and the United States of America.

COMMONWEALTH SAVINGS BANK

Plan your Project and Essay now. Entries close 1st October.

D *stands for DAVIS*
The best Food GELATINE,
For old folk and young folk
And those in between.



What will the MAN-on-the-MOON have for Dinner?

The old nursery rhyme mentions cold porridge! It is certain that a modern space man will have food in GELATINE.

Why is this so?

Explorers use GELATINE on expeditions to harsh and barren parts of this planet, to the Himalayan Mountains or the polar wastes of ice and snow; on expeditions to the lush jungles of New Guinea, the Upper Amazon or Central Africa.

In these inhospitable places food supplies are of vital importance and GELATINE, a highly refined protein food product, easy to prepare and convenient, has many advantages for the explorer.

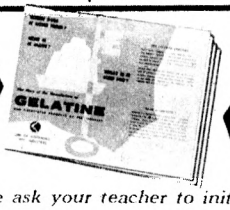
The Russian astronaut speeding through space at more than 17,000 miles an hour is reported to have fed himself with water and special preparations squeezed from tubes, including a jelly concentrated food.

It is reasonable to assume that the first astronauts who land upon the lifeless wastes of the moon will also eat highly concentrated energy-giving food in GELATINE.

GELATINE is made in Australia by the DAVIS GELATINE ORGANISATION, from prime Australian sheep and cattle.

If you would like to read the fascinating story of this vital Australian industry send for the New Project Book.

Girls! The PROJECT BOOK has a special section for YOU, explaining the way many different dishes are made from Davis Gelatine.



WRITE TO "PROJECT" DAVIS GELATINE

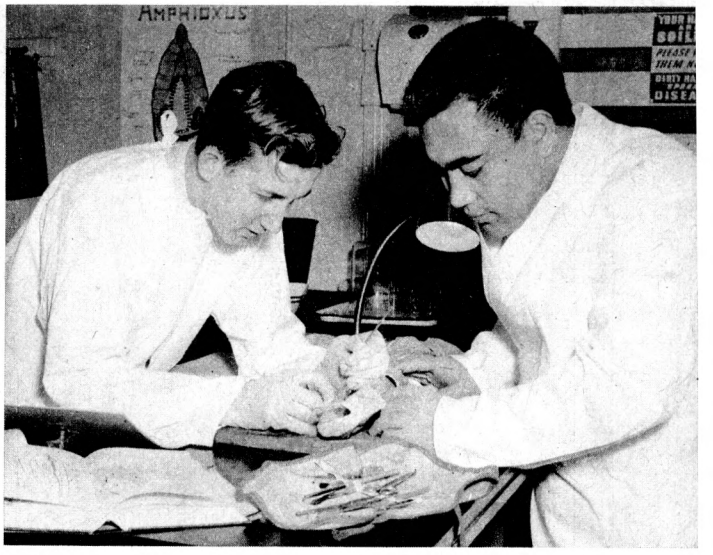
G.P.O. Box 3583, Sydney, N.S.W. G.P.O. Box 758K, Brisbane, Q'LAND.
G.P.O. Box 4058, Melbourne, VIC. G.P.O. Box 712F, Adelaide, S.A.
G.P.O. Box H588, Perth, W.A.

NOTE: You should be careful to mark "Project" on the envelope.

(If you write for a quantity of New Project Books for your class would you please ask your teacher to initial your letter.)

Plan your project or essay now. Write to the firms for their literature.

Supplied by The Department of Technical Education, N.S.W.



BIOLOGY STUDENTS in Certificate course dissecting a fish in a classroom exercise.

TODAY we live in a technical age; an age of wonder drugs, jet planes that can fly still faster, and rockets that can reach the moon. These advances have been the direct result of the technical skill and dedicated teamwork of scientists, engineers, and technicians throughout the world. However, we must remember that this technical age has not suddenly come into existence, but is the outcome of technical training programmes with long years of planning behind them. Technical education has, in fact, already a history nearly a century old in this country.

Today the demand for trained people is rapidly increasing and so essential has technical education become in this modern age of space flights, automation, electrical computers, and nuclear energy, that in 1949 the Government of New South Wales created a separate Department of Technical Education to give undivided attention to its development in this State. One of the Government's main policies has been to make technical training facilities equally available in all areas of New South Wales. As a result there are now 11 major technical colleges in the metropolitan area of Sydney and 37 in country cities and towns. Connected with these colleges are 120 associated centres in smaller townships. As the demand for technical training has increased, classes have been extended to new centres, new colleges planned and opened, and older ones expanded. In 1961 a new college was opened at Liverpool and work was commenced on others at Penrith and Seaforth. At the same time new buildings were opened and additional ones begun at North Sydney, Griffith, Canterbury-Bankstown, Murwillumbah, Wollongong, and at other country and metropolitan colleges.

In areas which do not yet support a college, the Department has made other arrangements. Where apprentices are not sufficient in number for an established college to operate, the Department has provided a service which is unique not only in Australia but in the world. In three country areas in New South Wales, special mobile trains bring classrooms and workshops to trade students of fitting and machining, automotive engineering and welding. In a fourth district, another mobile train is similarly equipped to teach electrical trades. In many other cases, correspondence courses supply further instruction for students who cannot attend classes, and special practical sessions in colleges in Sydney are arranged during the year.

Courses. People of many interests and aptitudes may find courses to suit them through the Department of Technical Education. Almost 400 such courses, covering training of many different kinds and at varying levels are offered, and nearly 100,000 students are today taking advantage of them to train for careers in many different fields.

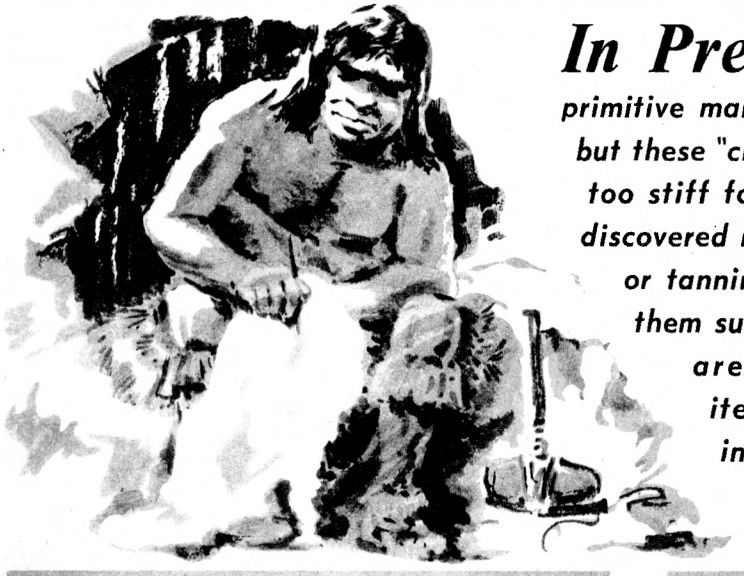
Technician Courses. The provision of the highly important certificate courses for the training of technicians in engineering, science, and building has been an important modern step by the Department. The technician today is a valuable and essential member of many industrial and scientific work teams and his services are daily more in demand, not only in Australia, but throughout the world. He or she must have a thorough knowledge of the many processes associated with his work and a sound understanding of the underlying principles in their special fields. Depending upon the field they choose, they may be called upon to test and operate equipment, to assist in the installation and servicing of machinery, to undertake work on laboratory research projects, and to prepare working plans for various buildings. It is people with such abilities which the Department's certificate courses are training and which are attracting young people who have done well at school or achieved good records in their trade courses. Those who have passed the Leaving Certificate are finding the certificate courses a particularly satisfying training for their talents.

Certificate courses cover electrical, mechanical, marine, structural, mining, production and instrument engineer-

CONTINUED ON PAGE 14

E

for EXACTO COTTON GARMENTS for all,
Made in Australia for big and for small,
They're warm for winter or for summer
they're cool,
The ideal garments for children at school.

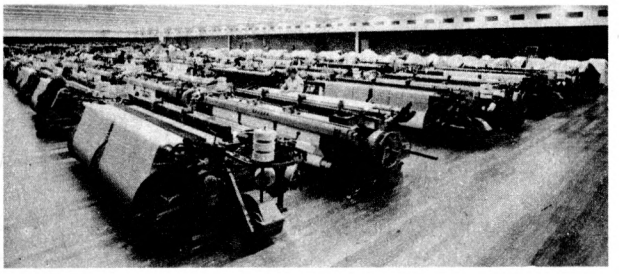


In Prehistoric times . . .

primitive man wore animal skins for warmth, but these "clothes" rotted quickly, or became too stiff for comfort. Eventually he discovered methods of preserving or tanning the skins to make them supple and soft. Furs are still the main items of clothing in Arctic regions.

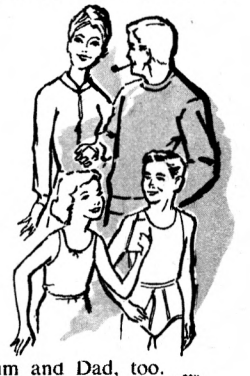
Man required clothing as protection from the sun and weather. The prehistoric Persians and Egyptians discovered the method of making fibres into cloth, which we now know as spinning and weaving. This picture shows the primitive "Badarian" method of spinning the yarn and the "Ground Loom" on which the cloth was woven.

After thousands of years, the Ancient Greeks had advanced the art of cloth making to a high degree. Cotton, flax and wool were woven, decorated and dyed, then made into the loose type of wraps or clothes so universally worn in the then civilised areas of the world. This picture shows the advanced production methods used by the Greeks in about 700 B.C.



Today, thanks to Hargreaves, who invented the spinning jenny, and Rev. Dr. Edmond Cartwright, who invented the power loom, we are able to produce cloth at a rate never before dreamed of, on looms such as these, at Davies, Coop Mills which are among the most modern in the world.

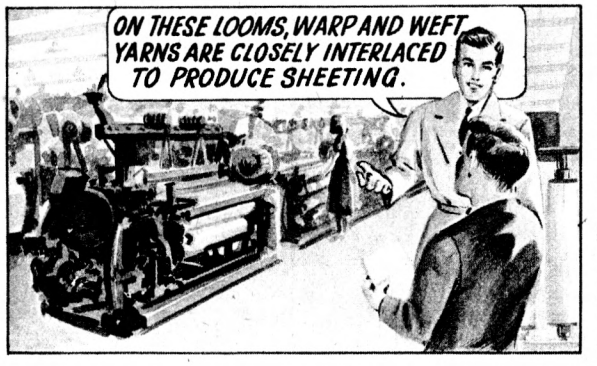
There are two main types of cotton fabrics — woven and knitted. Knitted fabrics stretch and return to their original shape, fit neatly, and are more comfortable.
There are famous 'EXACTO' knitted garments for both boys and girls.
For girls: Cosyniks, Cosyvests, Windcheaters, Skee-Jamas, Airflow Debbies and Vests and Cotton Pullovers.
For boys: Windcheaters, Skee-Jamas, Chillproof Underwear, Airflow Skimps and Singlets and knitted Sports Shirts.

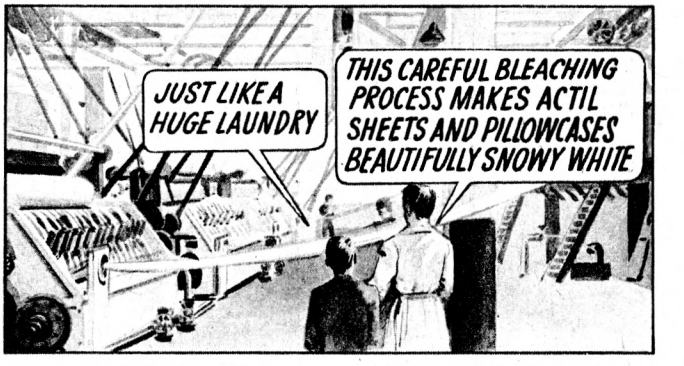


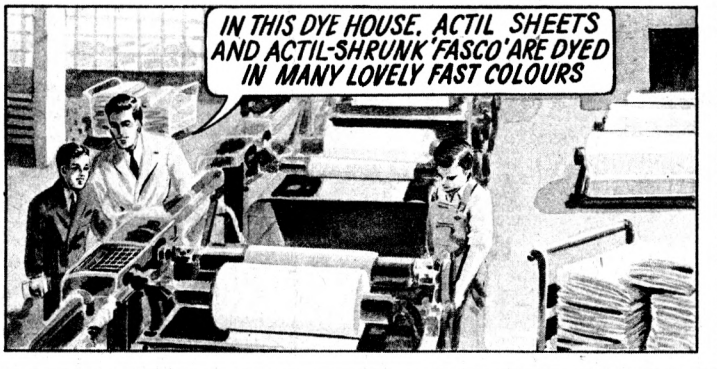
There's a range of garments for Mum and Dad, too.
Write for your 'EXACTO' Cotton Project to

DAVIES, COOP & CO. LIMITED
BOX 4, P.O., YARRAVILLE, VIC.

F stands for "Finest", Which all are agreed, Describes ACTIL PRODUCTS Which every home needs.







AN ACTIL PRODUCT

Send for FREE ILLUSTRATED BOOK!

WRITE FOR ACTIL'S INTERESTING FREE BOOK "EVERY INCH AUSTRALIAN," WITH COTTON, YARN AND CLOTH SAMPLES TO ASSIST YOU WITH YOUR PROJECT!
Send your name and address, including the State in capital letters, and address your envelope to . . . . . .

ACTIL,
Box 1126 G, G.P.O.
Adelaide, S.A.

BUY QUALITY BY ACTIL

AUSTRALIAN COTTON TEXTILE INDUSTRIES LIMITED

• Sheets & Pillowcases • Terry Nursery Squares • "FASCO," The All Purpose Fabric • "Beau-Weave" Furnishing Fabric

Literature has been prepared by the firms advertising to help you with your project. Write to their addresses.

G

stands for GAS, THE FUEL THAT IS BEST,
For hot water, cooking, it beats all the rest,
For clothes-drying, heat and refrigeration,
Gas is the popular choice of the Nation.

Today, more people than ever use Gas. Gas makes modern living complete. Let Gas make your school project complete, too! Learn what the **MAGIC GAS FLAME** means to your mother... what it will mean to you, too, when you grow up and have your own home.

I'm a Magic Gas Flame,
Happy, bright and gay,
I serve the family faithfully,
Twenty-four hours a day.

Though I'm often used for heat,
For cooling I excell,
I keep 'Fridges so freezing cold,
Work silently, as well.

Mother always needs me,
I'm used in factories,too,
I'm clean, bright, give lots of light,
One day I'll work for you.

Let me be your project,
I'm fancy free that's me,
I come in coloured book and charts,
You'll love me, just you see.

Gas is best for heating,
I give a cheery flame
Just turn me up, or turn me down,
I'll work on, just the same.

I'll help you do your project work,
We'll both have lots of fun,
Don't forget that one day soon,
You'll need me, just like Mum.

Don't forget, boys and girls, the **Magic Gas Flame** will help you prepare a most wonderful project. For FREE project material, write to your local Gas Company, or the Australian Gas Association, G.P.O. Box 5102BB, Melbourne, Victoria.

Don't forget to include your name, age and address. (on back of envelope) You will be sent a 'MAGIC FLAME', 'GAS IN PICTURES', or a fully-coloured 'CUT-UP CHART', depending on your age.

4105

TEACHERS

Our project material is prepared with the co-operation of educational experts.

Start your Project without delay. (A job begun is half done.)

TECHNICAL EDUCATION IN N.S.W.

(Continued from page 10)

ing, electronics and communications, chemistry and biology for technicians in hospital or industrial laboratories and courses for Health Inspectors, Electroplaters and Metallurgists. Two new courses in Architectural Drafting and Building were also commenced in 1961.

A pass in Science, Mathematics, and English in the Intermediate Certificate is an essential entrance qualification to these courses, and trade students who have completed their training may be granted exemption from certain subjects in early stages of the certificate courses.

Certificate courses are also available in agriculture, personnel administration, management, accountancy, woolclassing, and transport administration. In 1961 over 5,300 students were enrolled in the technician courses in New South Wales and 15,000 altogether in all the certificate courses. In the last five years enrolments in certificate courses have increased 85%, a pointer to the value of the Department's courses and the need to fill a great demand for technicians.

Trade Courses. Trade courses have for many years been conducted by the Department, and each is specially designed to supplement the experience of the apprentice on the job. Over 70 such trade courses are now available in subjects as widely differing as Graphic Arts and Engineering, Hairdressing and Radio, Butchering and Building. The content of a course is carefully watched to make certain that any new developments in a trade field are either covered in a trade course or incorporated in post-trade courses. The apprentice's knowledge is, therefore, extended during his course of training, or supplemented by the information incorporated in the later journeyman or post-trade courses. In recent years many important developments have occurred; the use of fibreglass has influenced the content of the motor body building courses and special courses have been introduced in transistors for employees in the radio trade and in automatic transmission for automotive engineering students.

NORTH SYDNEY TECHNICAL COLLEGE. July, 1961. Television Studio Techniques Course. Stage II students at work at control panel.

The Department also provides a number of courses for boys who have completed their Intermediate Certificate. These pre-apprenticeship classes provide trade training while boys are still completing their general studies. Pre-apprenticeship courses include Building, Automotive and Mechanical Engineering, Plumbing and Sheet Metal, and Graphic Arts. The pre-apprenticeship student who successfully completes this study period is admitted to the second year of his trade course.

Commerce. In the commercial world there is an equally wide variety of courses from which to choose, leading to professional recognition in accountancy, company secretarial practice, and banking. Girls who wish to become stenographers or secretaries may choose the one year Advanced Secretarial Course at Sydney Technical College if they possess their Leaving Certificate, or the widely available Day Secretarial or Day Stenography courses if they possess their Intermediate Certificate or have reached an equivalent standard of education. These secretarial courses are all full-time.

Management. The boy or girl who enters the business or industrial world may later find that the position calls for administrative or organisation skill, and the ability to handle staff. The management field is a very wide one and the courses conducted by the Department are specially prepared to supply training and instruction for men and women at many levels. Courses cover Management, Public Administration, Supervision, Industrial Safety, Wholesale Distribution, and Purchasing and Supply Management. Next year, a new course in the important subject of Retail Distribution will be introduced with a syllabus covering Retail Selling, Sales Calculations, and English. It is intended for the sales assistants employed in retail shops.

Rural Courses. The Department provides a number of comprehensive rural courses. The School of Sheep and Wool conducts classes in Sheep, Wool, and Woolclassing, not only in Sydney, but in more than 80 centres throughout the State. Certificate courses in Agriculture and Horticulture, each of three years' duration, are available, and post-certificate and special courses are also offered. Many country colleges and their associated centres also offer rural courses. These are specially designed to cover both general topics and topics which are relevant to the agricultural activities of a particular district.

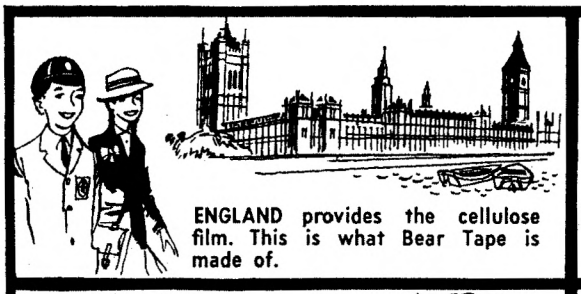
Other Courses. These are only some of the courses numbered among the 400-odd offered by the Department. There are many others which provide equally valuable and comprehensive training for people with different aptitudes and interests. Art is taught at the National Art School and at many metropolitan and country centres, both to children and adults. Women's Handicrafts cover instruction in dressmaking, millinery, ladies' tailoring, lingerie and flowermaking, and Food Preparation and Catering train the hotel and restaurant employee, the pastrycook, and butcher. Other courses are provided in Advertising, Navigation, General Education, and Home Science.

The majority of these courses are part-time ones, but many, including secretarial, tracing, women's handicrafts, matriculation studies, woolclassing, and biology may be studied full-time.

Technical education is the gateway to many important careers, the means by which training can be obtained for an increasing number of occupations, all essential in our world today. Young people and their parents should think very carefully about careers for which a technical education will fit them. Detailed information about courses, fees, and enrolment procedures can be obtained from the Principals of Technical Colleges or the Principal Guidance Officer, Department of Technical Education, 25 Broadway, Sydney. A guidance and counselling service is also conducted for students, and if you have any questions or problems you are invited to consult or write to the Principal Guidance Officer.

H is for home, where a job may require Something handy that sticks it. Reach for the roll of BEAR BRAND TAPE, A little Bear will fix it.

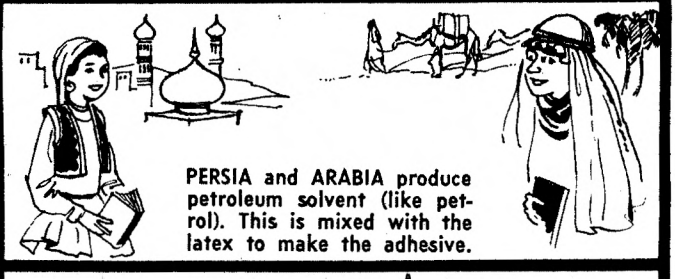
Behr-Manning is the name of the company that makes the familiar rolls of Bear Tape you use so often at home and school. In order to make Bear Tape, they have to bring materials to Australia from all over the world.
These are the lands which supply the raw materials for Bear Tape. The schoolchildren are shown wearing typical school clothing of their countries.



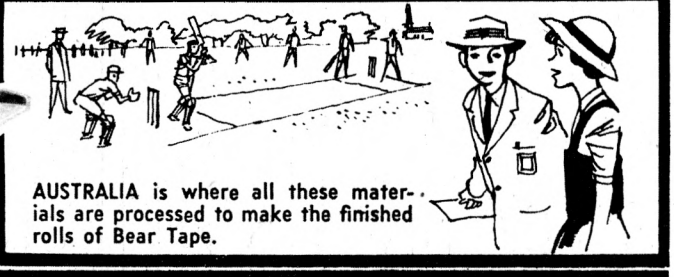
ENGLAND provides the cellulose film. This is what Bear Tape is made of.

AMERICA sends resins for the adhesive. These resins are made from the sap of pine trees found in such places as Norway, Sweden and Canada.

MALAYA and CEYLON send latex from the sap of rubber trees — a vital part of the adhesive used in Bear Tape.



PERSIA and ARABIA produce petroleum solvent (like petrol). This is mixed with the latex to make the adhesive.



AUSTRALIA is where all these materials are processed to make the finished rolls of Bear Tape.

AUSTRALIAN MADE

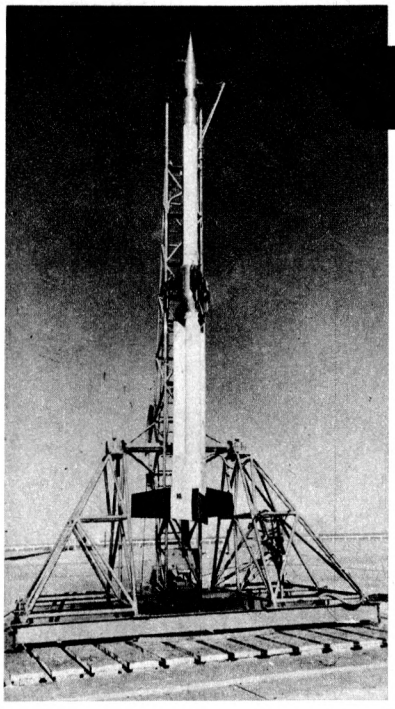
So you can see, that although Bear Tape is made in Australia, it is truly an international product. It comes in many varieties. You probably know the transparent type best. But there are also tapes you can write on, coloured tapes and even special Christmas tapes to make your presents look really Christmassy. If you would like to learn the whole wonderful story of Bear Tape and the people who make it, write in for the FREE Project Book called "Just what is Bear Tape?"

BEAR* TAPE
BRAND

To help you with your competition entry write for your copy to "Project"

BEHR-MANNING
(AUSTRALIA) PTY. LTD. NORTON*
NYRANG STREET LIDCOMBE, N.S.W.

* Trade Mark Property of the Norton Co. U.S.A.



"LONG TOM" — a two-stage rocket designed and built at the Weapons Research Establishment of the Department of Supply. (Fig. 1.)

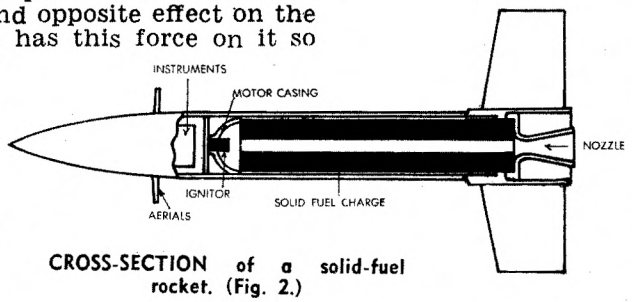
The Rocket

Contributed by The Minister for Supply, Brisbane

● In a wood fire, some of the wood combines with the oxygen of the air to form gases, and since heat is given out during this process the gases are hot. This reaction is called burning or combustion.

Now some substances burn more quickly than others. For example, the head of a match burns faster than the wood of the match. Special mixtures can be made which burn violently, especially if one of the chemicals in the mixture is a supplier of oxygen. The oxygen is then supplied very quickly, burning is faster, and hot gases are produced rapidly. In the fourteenth century it was found that a mixture of sulphur, charcoal, and saltpetre burnt violently, and the various mixtures made were called gunpowder. In this case the oxygen is provided by the saltpetre.

Suppose one of these fast-burning compounds is placed in a closed vessel with a hole in it, and the compound is set burning. The hot gases formed will produce a pressure inside the vessel, and this will cause them to rush out of the hole at great speed. If you want to see what happens under these conditions, then blow up a toy balloon and release it. The balloon goes rocketing across the room, because the forces that push the air out of the neck have an equal and opposite effect on the balloon. The balloon has this force on it so long as there is air inside to rush out; but in a vessel with a fire inside, the force continues as long as there is rocket fuel to burn. That is all a rocket fuel is — a fast-burning chemical compound that produces a lot of hot gas. And a rocket is a closed vessel with a hole in it through which the hot gases escape at very high speed, and this produces a force on the rocket that sends it zooming along.



CROSS-SECTION of a solid-fuel rocket. (Fig. 2.)

If the rocket is to travel through the air, it must be long and thin, and have a sharp nose so that there is not much air resistance. Most of it is filled with fuel, and the hole at the back is really a horn-shaped pipe called a venturi or nozzle, which is shaped that way so that the thrust is as great as possible. Fins are built on the back to make sure the rocket keeps pointing in the right direction. The fuel can either be a solid stick, of which cordite is an example, or it can be liquid. Figure 1 gives you some idea of what the inside of a solid-fuel rocket looks like. If liquid fuel is used the hot gases are produced by mixing two liquids, and burning them in a chamber fitted with a nozzle. Liquid oxygen is often used; that is, oxygen gas which has been pressed so hard that it turns into a liquid. In such rockets the long thin shape is mostly taken up by tanks to hold the chemicals, and pumps to force them into the chamber.

Rockets are not at all new. The Chinese used rocket-boosted arrows against the Mongol invaders about 900 years ago. However, it was not until the 1920's that scientists began to study different types of rockets seriously in the hope that they could be made to fly great distances reliably. The early experiments were dangerous, and there were many explosions, but the difficulties were overcome, and this work resulted in the rocket weapons of World War II. The biggest of these was the German V-2, which was 46 feet long and 5½

CONTINUED ON PAGE 20

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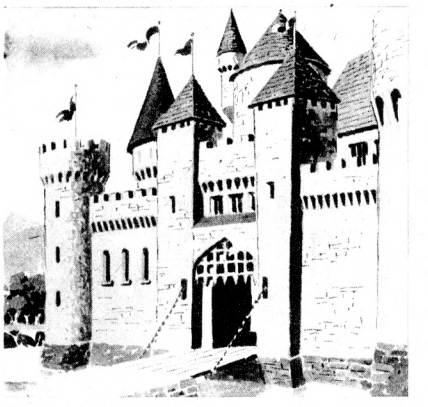
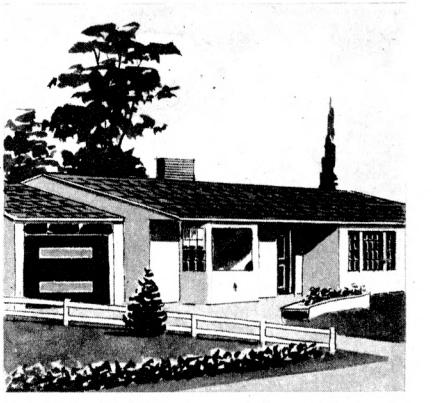
YOUR HOUSE—a history of Man's search for comfort

Unlike most other creatures, man is unable to live entirely in the open without shelter from extremes of heat and cold. He has had to build shelters and thus the history of his search for protection and comfort is also the history of housing and insulation. The insulation materials that he has used not only have influenced the designs of his dwellings, but also his way of life. His greater knowledge of insulation now makes it possible for man to live in comfort in hottest deserts or in the Antarctic cold.

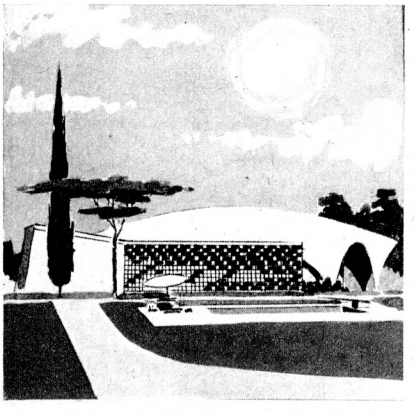
Walls of caves which kept out extreme cold helped primitive man to survive the Ice Age. Later he discovered that roofs of straw thatch kept huts warm.



The thick walls of castles were good barriers against extremes of heat as well as enemies. In hotter countries big blocks of adobe kept houses cool.



Today, thick materials are no longer necessary to make houses comfortable. A thin lining of aluminium foil will insulate better than stone 2 ft. thick.



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In your home or outdoors bringing gay music near.
But RADIOS like FLASHLIGHTS need power that's steady,
The long life and freshness of our own "EVEREADY."

How Radio began and developed

Have you ever thought what life would be like without radio? No music, no entertainment, nothing to inform you what is happening in the outside world. Let us whisk you back in history and see how radio, this commonplace thing in our every day lives, came about.

THE YEAR 1876 saw the first actual telephone message. Alexander Graham Bell from the attic of his home in Boston spoke to his assistant in the cellar. The odd looking contraption he used as a telephone was the forerunner to the development of "wireless" or radio; i.e. broadcasting without connecting wires.

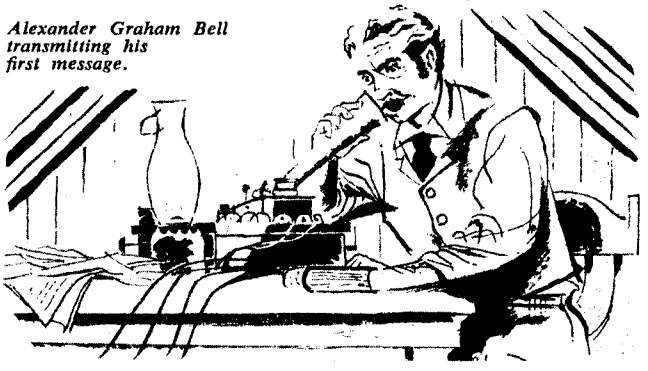
In 1901, in Newfoundland, the Italian genius Guglielmo Marconi picked up the dot-dot-dot of the letter S in Morse code being transmitted from Poldhu, Cornwall — nearly 2,000 miles away across the Atlantic Ocean.

By 1906 speech and music could be transmitted 25 miles and by 1910, 500 miles, though with many technical difficulties.

By 1919 a message from England could be received by wireless telegraphy in Australia.

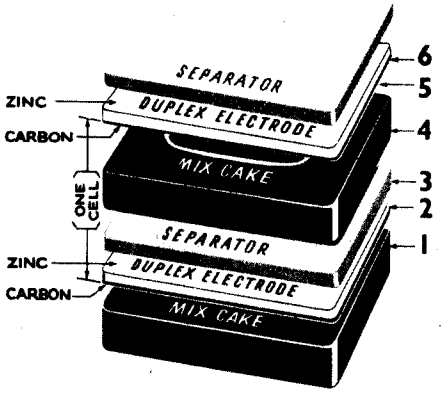
From broadcasting, the radio era, as we know it, began. Radio sets in those early days were a cumbersome jumble of wires, valves and batteries. By 1948 with the advent of the transistor, the whole concept of radio had changed. Where the valve had a life of brief and uncertain expectancy the transistor lasts, in practical terms, forever. Transistors are only about one quarter of an inch in size, allowing a considerable reduction in the weight and size of radios; many radios today will fit comfortably in your pocket. Turn the switch and the transistor radio bursts instantly into sound where the old valve type always needed a long warming up period. The transistor radio requires considerably less power too. It will operate for many hundreds of hours on a small, safe, inexpensive dry battery — or energizer as we call them.

Alexander Graham Bell transmitting his first message.



Right through the history of the telephone and radio, batteries have played a vital role. Back in 1920 "EVEREADY" began making batteries for early radios and ever since the association and development of both has been closely linked. The manufacture of the first "EVEREADY" batteries goes back even further to the beginning of the century. **Today, 60 historic years later, "Eveready" have reached a position where they make 400 different types of batteries for all uses. At the modern plant at Rosebery, N.S.W., where "Eveready" batteries are made, scientists employ the skill and experience gained in these years in the work towards new and improved types of batteries.**

How a Dry Cell Battery works



In a "Mini-Max" battery, a complete cell consists of four parts. The Zinc **(2)** The Separator **(3)** The Mixcake **(4)** The Carbon **(5).**
Carbon **(1)** is a part of the next cell below, and Zinc **(6)** belongs to the next cell above. In this battery the Zinc of one cell and the carbon of the adjacent cell are combined in a single plate called a "Duplex Electrode".

There is nothing mysterious about a dry cell or the manner in which it works. Usually it consists of a zinc can into which are packed certain active chemical materials which combine with the zinc to produce an electrical pressure or voltage. The voltage so produced is always the same regardless of the size of the dry cell. New, the dry cell has a voltage of about 1.5 volts and this is true whether it be a very small one like a flashlight battery or a large 6 inch type. But the amount of electricity actually stored in a dry cell does depend on its size. The manufacturers' skill and knowledge contribute to increasing this capacity. An example of this is the amount of power stored in the tiny energizers which Eveready has developed for use in transistor radios.

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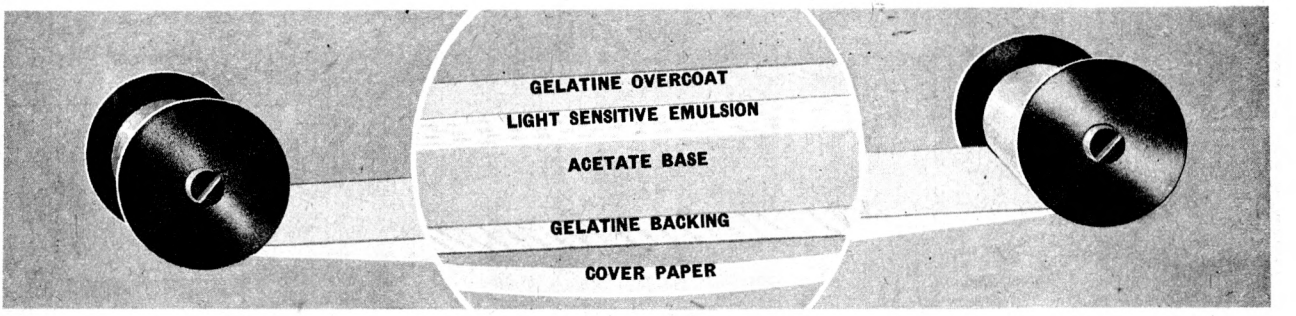
What you should know about photography.

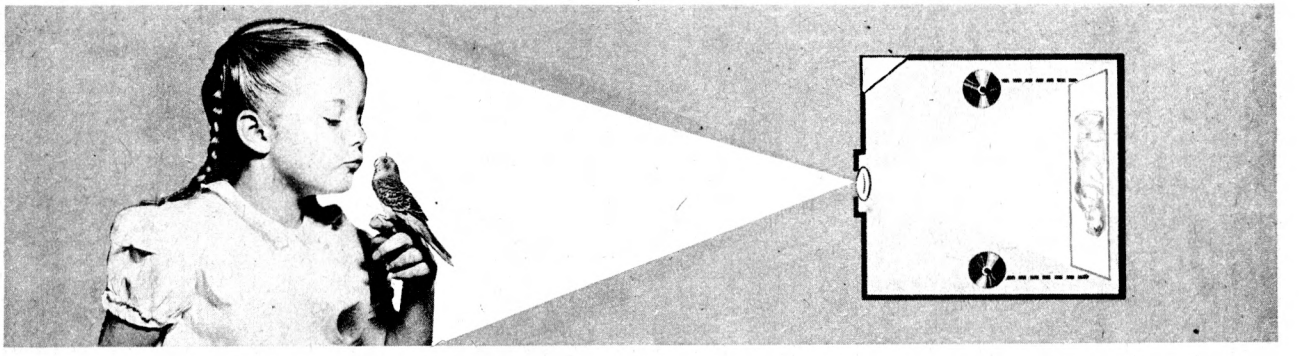
Most of us have cameras of our own, and enjoy taking pictures of our friends, our homes, our pets and so on. We eagerly look forward to seeing the finished results — the snapshots we store away in our photograph albums and happily look back upon in later years.

But have you ever asked yourself just how do we get these pictures? We already know that a camera cannot take pictures by itself; before we can take photos, we must load the camera with film. But what exactly IS film? . . . How does it work?



To begin with, the film you load into your camera is actually a thin strip of acetate plastic, coated with a special emulsion which undergoes a chemical change when exposed to light. This emulsion contains grains of light-sensitive silver chemical, so minute they can be seen only with a microscope.

In the very short time the shutter is open (about 1/40th sec. with most simple cameras), the light reflected from your subject passes through the lens of your camera to the film. Brightly coloured subjects reflect more light than dark ones and affect the film accordingly.



When a film is finished it must be developed to produce the negative — those areas affected by light turn black. Then, the negative must be chemically 'fixed' to prevent it from being affected by further exposure to light. The negative is then printed on to paper — those black parts in the negative then show as white parts in the print. This is just a brief outline of what film is and the way it works. As for your camera, you'll see that it takes the picture upside down — but that doesn't affect your final snapshot. Photography can be so fascinating — make it your number-one hobby.

To help you with your school project . . .

If you want to learn more about photography, write to Kodak in your nearest capital city for your free copy of the Kodak project book "Magic World of Photography". It will give you a much better appreciation of what you are buying when you next ask your Chemist for a roll of KODAK Film.

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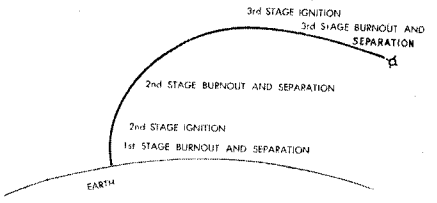
ROCKETS (continued from page 16)

feet in diameter, and had a range of about 200 miles.

Rockets are used for many purposes nowadays. Small rockets can be fitted to the side of heavily loaded aircraft to help them take off from short airfields — called JATO for Jet-Assisted Take-Off. Guided Weapons are boosted to supersonic speeds using rockets. Such weapons are very complicated, and have devices fitted in them which allow them to detect the target and steer themselves to it, whereupon a warhead explodes, destroying the target.

The Department of Supply's Weapons Research Establishment, Salisbury, South Aus-

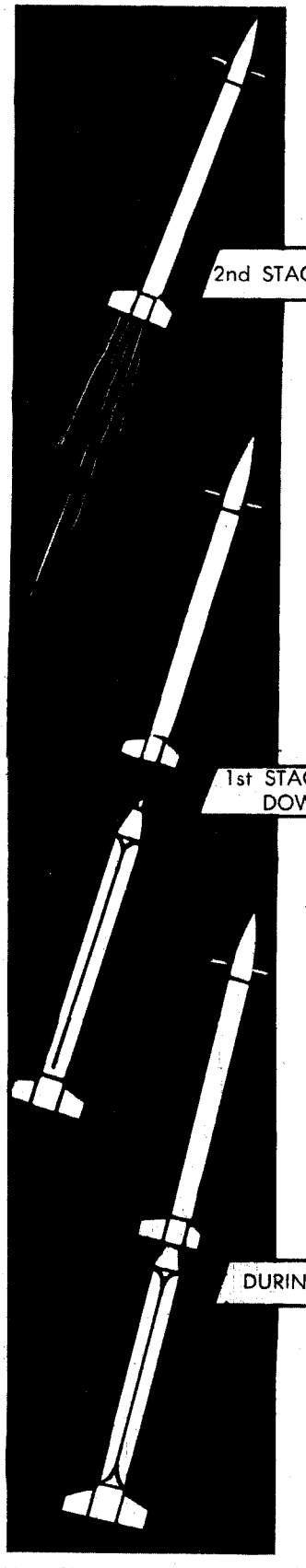


SATELLITE LAUNCHING.

tralia, has designed and built rockets such as "Long Tom" (see Figure 1). These rockets are used to obtain information about the gases of the upper atmosphere, and to measure temperature, pressure, density, and winds. "Long Tom" is a two-stage rocket which can fly to a height of 100 miles. It has scientific instruments fitted into the nose of the second stage. The first stage boosts the rocket to a speed of nearly 2000 miles per hour in four seconds, and when the fuel of the first stage is "all-burnt" the drag of the air pulls the two pieces apart, and the thick first stage rocket lags behind the thinner "streamlined" second stage. Then the second stage ignites after a short delay and goes on by itself.

More powerful rockets still are used in Ballistic Missiles which can fly for thousands of miles. The United States has built a rocket called "Polaris," which can be launched from a submarine. If part of a rocket is sent to a great height and given a horizontal speed of about 18,000 miles per hour it will go "into orbit." By this we mean it will continue to circle the earth. This happens because while it is trying to fall back to earth it travels forward so far that all it succeeds in doing is turning the rounded corner of the earth's shape. Rockets used for launching satellites usually have three stages, with the satellites carried in the third stage. The large powerful first stage lifts the whole lot up through the dense atmosphere, and then it separates. The second stage takes over, going up higher and faster and gradually curving over until it is exactly horizontal, and then, at the right moment, the third stage fires and gives the satellite its final high speed to set it into orbit.

If satellites are given speeds as high as 25,000 miles per hour they can escape from the earth's gravitational attraction completely. Then they are called probes, and they zoom off into some other part of the solar system. Or they can be directed towards some other planet. By this means it is hoped that some time in the not too distant future we will discover all manner of interesting facts about planets such as Venus and Mars.



SEPARATION of a two-stage rocket.

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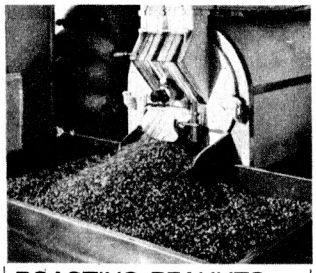

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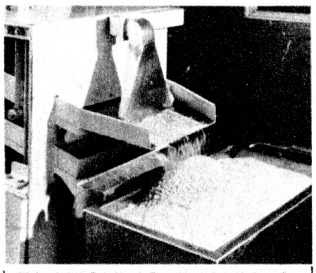

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In blanching machines, revolving brushes split the peanuts and remove their outer skins.

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After blanching, peanuts are graded and inspected carefully. Any inferior peanuts are removed.

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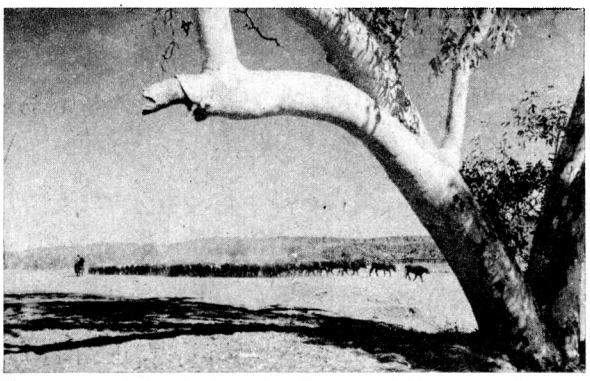
THE NORTHERN TERRITORY



A MOB of cattle in the Alice Springs District.

THE Northern Territory today is on the move. Since 1947 the non-aboriginal population has more than doubled and the aboriginal population is increasing. The Territory's natural resources are being surveyed, classified and vigorously developed to support more people. Living conditions generally are improving both for the aboriginal people, and for other Australians. Education and health services are being improved and extended; water and electricity are being laid down, and other town services developed; land is being made available for homes, shops, offices and industrial buildings and wharves, roads and stock routes are being built. There have been spectacular developments in the mining and pastoral industries.

Annual expenditure by the Commonwealth Government and its instrumentalities has increased from £8 million in 1952-53 to more than £17 million in 1959-60.

This great Territory covers one-sixth of the Australian continent and is six times as large as Great Britain. It is 1000 miles from north to south and 580 miles from east to west. Its winding coastline of 1040 miles is indented by bays and inlets and intersected by numerous rivers but, apart from Darwin, it has few navigable harbors. Its population is about 37,000. Of these some 17,100 are aborigines.

Discovery and Early History.

Malays from Macassar (in the Celebes) are known to have visited the Northern Territory from remote times, but the earliest recorded history begins with the Dutch, who named Arnhem Land in 1623. Captain Matthew Flinders explored the coastline in 1803; in 1824 Captain Gordon Bremer established the first settlement on Melville Island, which failed in 1829. Attempts to settle the north were abandoned with the failure of the military settlement at Port Essington in 1849.

Overland exploration began in 1845 when Ludwig Leichhardt travelled overland from Brisbane to Port Essington. In 1861 Burke and Wills traversed the continent from south to north. In the following year, John McDouall Stuart led an expedition from Adelaide to a point on the coast about 20 miles east of the mouth of the Adelaide River. Stuart's route made practicable the subsequent building of the Overland Telegraph, and opened the way to the north to pastoralists and other settlers.

The Territory Under South Australian Control.

On 6th July, 1863, through Royal Letters Patent issued by the Imperial Government, the Northern Territory became the responsibility of South Australia.

Cattle were introduced in the late 1860's when leases were granted near Alice Springs, and in 1869 Palmerston (now Darwin) was selected as the site of the Chief Town. In 1879 the first cattle stations in the north were established at Katherine, and soon afterwards on the Barkly Tablelands and in the Gulf country. By 1888 there were 218,000 cattle, 107,000 sheep and 104,000 horses in the Territory.

In June, 1870, work began on the construction of the Overland Telegraph line. The line, completed in August, 1872, consisted of a single iron wire suspended on poles and measured 1973 miles from Adelaide to Darwin. During the construction of the Overland Telegraph line the discovery of gold, and later copper, opened up a lucrative mining industry.

Fifty Years of Commonwealth Administration.

On 1st January, 1911, the transfer of the Territory to the Commonwealth under the Northern Territory (Administration) Act 1910 was completed.

SCHOOL OF THE AIR

The new administration began its task in an atmosphere of hope and enthusiasm. Scientific expeditions were organised and numerous experts were called in to advise on climate, health, anthropology, geology and agriculture. But many ambitious plans ended in failure and disappointment. Little progress was made in agriculture and mining and development of the cattle industry lagged because of poor transport facilities, low prices and other factors.

A new phase began with the outbreak of war in 1939. Darwin was heavily bombed on 19th February, 1942, and air attacks continued. Despite damage from air raids, and disrupted administration, much developmental work was carried out initially to meet the needs of the armed services. The Stuart Highway, an all-weather road 954 miles long from Alice Springs to Darwin, was built by Australians between 1940 and 1943. The Barkly Highway, between Tennant Creek and Mount Isa in Queensland, was completed shortly

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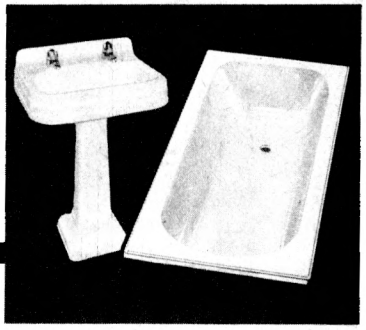
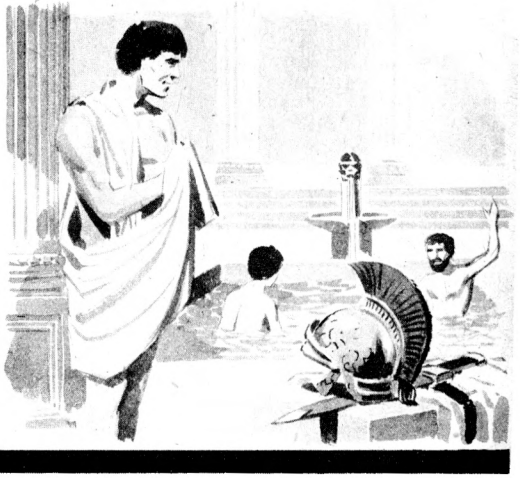
M stands for METTERS, MODERN and Mother, Who knows Metters BATHS Surpass any other.



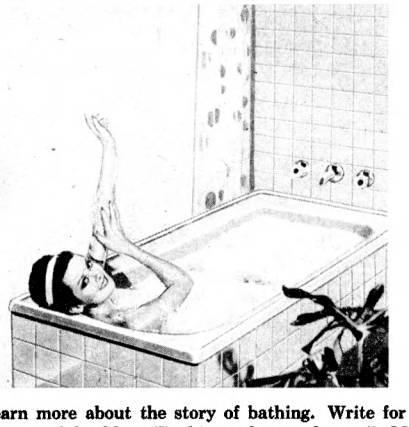
BATHING AMONG EARLY PRIMITIVE TRIBES

In early times, water was worshipped as a worker of magic. Bathing was practised as a result of superstition, as a religious rite, or as a means of freeing oneself from disease. Tribes bathed in the cold and often dirty waters of rivers, or in natural springs and pools.



THE BATHS OF ANCIENT GREECE AND ROME

Bathing was a part of everyday community life, a social duty. In Greece, the wealthy had elaborate, luxurious private baths in their houses. Giant public baths or thermae were built in Rome . . . the largest of these accommodated 18,000 people!



MODERN BATHS AND BATHING

From the first crude, primitive baths . . . the lavish baths of the Greeks and Romans . . . the unsanitary, leaky wooden bathtub of the 19th century, later replaced by metal and iron . . . so has evolved the gleaming, streamlined porcelain enamel bath that every good home has today. A Metters bath is an efficient, beautifully styled bath . . . designed for luxurious comfort—there's one to suit every family, every bathroom.

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Girls and Boys. Whatever your age, you have a chance to win one of the hundreds of prizes offered. See pages 4, 42, 44.

THE NORTHERN TERRITORY (continued from page 22)

afterwards. Manton Dam, a source of water supply for Darwin, was built in 1941 and urban electricity and other town services were installed.

With the establishment of a new portfolio of Territories in 1951, development has been intensified.

The Pastoral Industry.

The Pastoral industry, with 1,250,000 head of cattle, is the oldest established and most stable industry in the Northern Territory. During 1959-60 the value of beef cattle exported totalled a record £4,845,607. The future prospects appear to be at least as good as this because there is a continuing shortage of beef cattle, and the high prices offered on the Australian metropolitan markets for all classes of cattle seem likely to continue for some time.

Road Transport to railheads is a significant recent development. In 1959-60 54,290 head of livestock, of which 52,777 were cattle, were moved within the Territory in this way compared with 4480 head transported in 1956-57. Chief markets for the Territory are South Australia, Queensland and Western Australia. Trade in live cattle with South-East Asia is being fostered.

The Commonwealth Department of Health operates an aerial medical service throughout the Territory.

Mining.

In 1959-60, mining surpassed the pastoral industry as the chief income-earner for the Territory when the total value of mining production (excluding uranium oxide from Rum Jungle) was £6,471,019. Copper, produced mainly at the Peko mine near Tennant Creek and as a by-product of uranium at Rum Jungle, at present is the chief mineral being mined and production in 1959-60 was valued at £3,291,717.

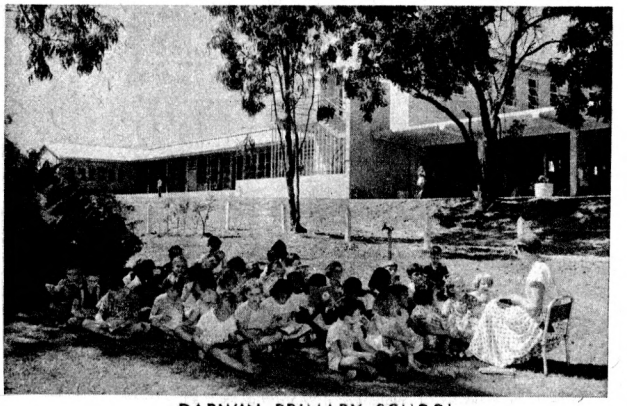
Gold is obtained from four main goldfields—Warramunga, Kurundi, Granites and Agicondi. Production in 1959-60 was valued at £1,087,617.

The discovery of uranium at Rum Jungle in 1949 touched off a new boom in mining which has resulted in the erection of three plants for the treatment of uranium oxide. Other minerals produced in the Northern Territory are mica, silver, lead, tantalite, ochre and quarry products.

Mineral production has increased in value from £449,205 in 1948-49 to the present total of £6,471,019 (excluding Rum Jungle).

Agriculture.

Although agriculture in the Territory had been of only minor importance to the present day, systematic research in post-war years has suggested that the industry has an encouraging future. Recently a committee under Professor H. C. Forster completed a comprehensive report on the prospects for agriculture in the Territory.



DARWIN PRIMARY SCHOOL

Aborigines.

The Commonwealth Government is directly responsible for the Territory's 17,100 aborigines. The official attitude towards the aborigines has evolved slowly through ideas of protection and segregation to the present positive policy of assimilation, and it is towards assimilation that all activities are directed. This means that aborigines are now being assisted to live and work and think as white Australians do so that they can take their place in social, economic and political equality with the rest of the Australian Community.

A welfare Ordinance provided for the creation of a Welfare Branch under a Director who is required to promote the welfare of aborigines towards their ultimate assimilation. It is based on the concept that full Australian citizenship is as much the birthright of aborigines as it is of other Australians.

Education.

As an interim measure the Welfare Branch of the Administration is providing education for aboriginal children at special schools until such time as these children attain a level suitable for their admission to normal schools.

Plans are in hand to have all children provided with education by the beginning of 1966.

Since 1945 the South Australian Education Department, by agreement with the Commonwealth Government, has accepted responsibility for the staffing of all schools for European and mixed-race children. Thirteen such schools are now operating and cater for approximately 3380 children. In addition there are three church schools catering for 784 children. Assistance is also given to children in remote areas through the provision of lessons over the "School of the Air," which was established in Alice Springs in 1950. Some 35 children living within a radius of 450 miles of Alice Springs benefit educationally from this service. Instruction is given to the South Australian Leaving Certificate standard at both Darwin and Alice Springs.

Health.

The Commonwealth Department of Health provides an extensive medical service throughout the Territory. Four main hospitals situated at Darwin, Alice Springs, Katherine and Tennant Creek are maintained, as well as subsidiary hospitals at Batchelor and the Bagot aboriginal settlement. A leprosarium is maintained at East Arm near Darwin.

The Government also provides clinics, road and air ambulances, medical and dental services for infant welfare and schools and a nutrition advisory service. Government expenditure on health services, including capital works, repairs and maintenance, has increased from £261,156 in 1949-50 to £1,026,282 in 1959-60.

THE COMMONWEALTH AS IT IS TODAY (Continued from page 3)

position, for, though it is not independent, its Prime Minister is invited to the conferences held by the other Commonwealth Prime Ministers. Later this year, Tanganyika will achieve independence and has stated that she will apply for full membership of the Commonwealth.

It is important to remember that all the member countries join of their own free will, and that they are equal members of "the family." They have complete control of their own affairs; indeed their membership of the Commonwealth has been well described by a former Prime Minister of New Zealand, the late Mr. Peter Fraser, as "independence with something added and not independence with something taken away."

All the member countries recognise Queen Elizabeth II — the Queen of several Commonwealth countries besides Britain — as the symbol of their free association, and as such the Head of the Commonwealth. In Sir Winston Churchill's words, "The Queen is the magic link."

What is it that keeps the Commonwealth together? What is its real value in the world? The member countries have a number of things in common. These things form the firm foundations of the Commonwealth.

The Same Outlook

First, the member countries have broadly the same outlook about the ordinary man's rights to help to govern his own country through parliaments elected by the people, and to get fair and equal justice. They believe in the right of its citizens to lead a prosperous and full life, and that the richer members should help the poorer to achieve this. Finally, they believe that the Commonwealth, with its spirit of understanding between all races and religions, can help the world to progress in peace and understanding.

The Commonwealth works in two chief ways to achieve its ideals. Firstly, it believes profoundly in consultation, the art of getting together to learn what is in each other's mind. This practice of discussing the common problems of mankind, of passing on to each other opinions, information, and advice, proceeds from the top — that is, the Prime Ministers — all the way down. Other Commonwealth Ministers continually keep in touch with each other; so do all grades of officials of various government departments and specialists — scientists, doctors, teachers, and so on.

It can be seen, then, that the Commonwealth forms a great pool of experience and information which all members can use.

Secondly, Commonwealth countries join together to co-operate and help each other in many important matters, such as economic development, education, trade, science, and sport. I have met Indian students studying in Australia; African students in Britain; I have seen scientists of the Commonwealth study problems together, and Malayan students learning engineering skills in British factories.

All Play Their Part

In this co-operation every country plays its part. Naturally, the more industrially developed countries give far more than they receive. The more developed a country becomes, the more it begins to give to the others, not only money, but help of every kind.

An especially heartening feature is the great development of links between the youth of the Commonwealth. This takes place in sport

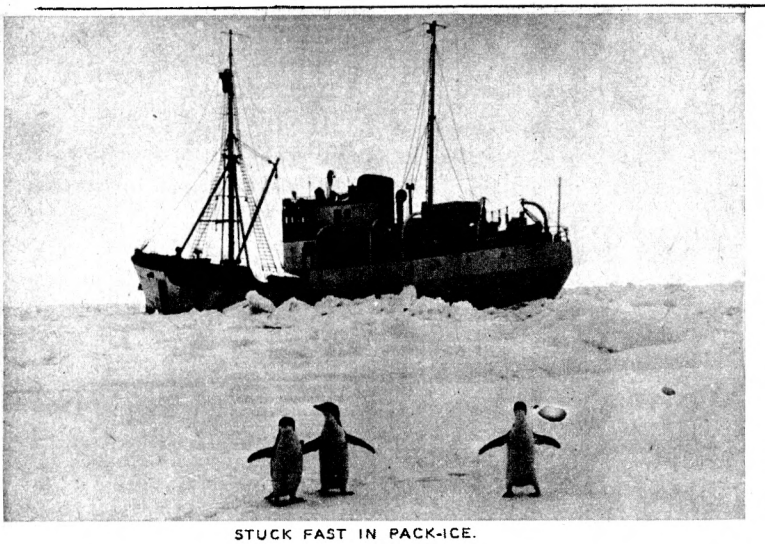
PROFESSOR F. W. PAISH is lecturing to students from the United Kingdom, Canada, South Africa and Southern Rhodesia.

in such things as cricket, athletics, football, tennis, and boxing. It is much in evidence in education, for thousands of Commonwealth students are at schools, colleges, or universities in other Commonwealth countries. In Britain alone there are 31,000 students at present from every country of the Commonwealth.

Only a little while ago the Commonwealth Training Week, launched by the Duke of Edinburgh, again brought youth into the picture. The "Week" was designed to bring home the importance of the Commonwealth's young people becoming skilled, and many exhibitions, conferences, and displays were staged all over the Commonwealth.

It is only fitting that the young people—and the younger nations—of the Commonwealth should be coming to the fore. For the Commonwealth has an increasingly important part to play in showing how men cannot only live in peace together, but understand and help one another.

Girls and Boys. Whatever your age, you have a chance to win one of the hundreds of prizes offered. See pages 4, 42, 44.



STUCK FAST IN PACK-ICE.

Contributed by the Antarctic Division, Department of External Affairs.

● The history of the exploration of any country is an interesting study in itself. In this short article the story of discovery in Antarctica cannot be told. It will be necessary to restrict ourselves to discussing mainly the present-known features of what has been described as "the last continent" for adventurous men, and the work which is now being done there.

UNTIL recent years, little was known and written about Antarctica. Since the International Geophysical Year 1957-58, our knowledge of this vast south continent has greatly increased. The I.G.Y. was a co-operative effort by the scientists of the world to study the earth and its atmosphere. They paid special attention to the north and south polar regions, and their joint venture was a great success.

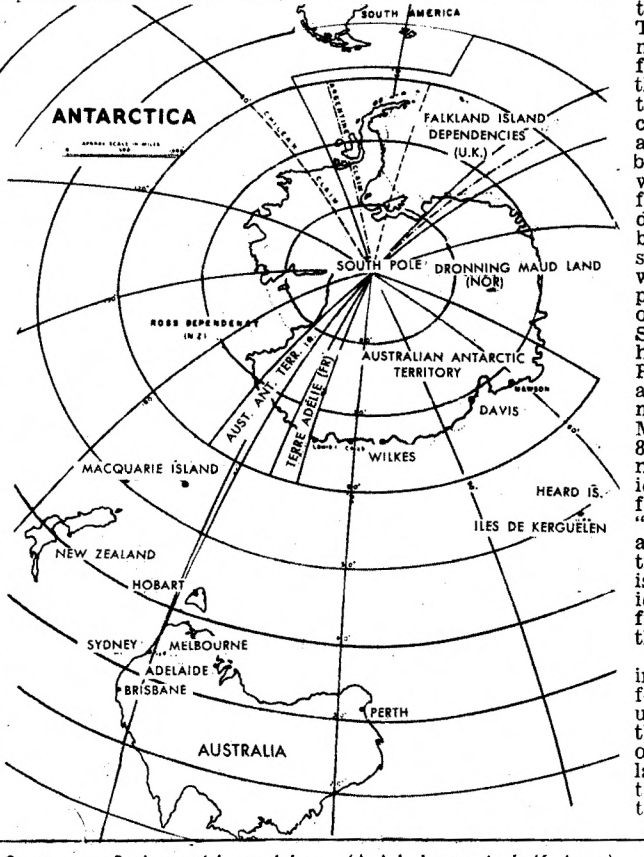
Following this international co-operation by the scientists, statesmen of certain nations, who had been active in Antarctica research got together, and, on 1 December, 1959, the Antarctic Treaty was signed by Argentina, Australia, Belgium, Chile, the French Republic, Japan, New Zealand, Norway, the Union of South Africa, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland and the United States of America.

The Treaty provides for complete freedom of access by scientific expeditions to any part of the Antarctic continent for interchange of the scientific information obtained, and for the exchange of scientific personnel. Under its terms no military activities of any kind may be carried on in Antarctica, and a system of inspection by national observers will ensure that this provision is not evaded. The aim of the Treaty is to foster goodwill and co-operation amongst the nations working in Antarctica, with scientific advancement as their common purpose.

Antarctica is a large part of the Earth's surface with an area of 5,400,000 square miles (including ice shelves). This area nearly equals that of Australia and U.S.A. combined. There are great variations in climate and topography, while the common environment is one of ice or snow. The iced surface of the continent is shaped almost like a flattened dome which rises rather steeply from the coast, and then levels out to a more gentle slope towards the Pole. The shape of this dome, however, is made irregular by such features as the Ross Sea, the Weddell Sea, and the peninsular area known as Graham Land. Most of the continental plateau is more than 8000 feet in altitude, while the highest areas exceed 13,000 feet above sea level. The depth of the continental ice sheet varies a great deal because of the irregular surface of the rock underlying it, but it has an average thickness of about 6000 feet. The greatest ice thickness recorded so far is 13,000 feet in Byrd Land. The thickness of ice at the Pole is 6529 feet, while the ice surface is 9200 feet above sea level. In many places the underlying rock is below sea level.

There are many mountains, and the highest one known is Mt. Markham, which is 15,093 feet. Most of the mountains are scattered around the edge of the continent. This is partly because the great thickness of ice further inland probably hides many mountains except those whose peaks are seen above the ice cap.

Ice shelves are very important parts of the Antarctic coastline, and comprise some 400,000 square miles of the total area of Antarctica. The continental ice sheet moves slowly, like a glacier, from the plateau, and down the coastal slopes towards the sea. Usually at the coast the ice breaks away and floats to sea as icebergs. But in some places, where it is fed by much ice from glaciers, the ice sheet does not end at the coast, but extends out into the sea as a flat, floating shelf, which is quite thin compared with the thickness of ice in other places. Some ice shelves extend for hundreds of miles. The Ross Ice Shelf, with an area of about 210,000 square miles, is the largest one. Most ice shelves are from 800 to 1000 feet in thickness, and end in vertical ice cliffs from 60 to 120 feet high. Flat-topped "tabular" icebergs break away from the cliffs from time to time. As more ice is fed into the base of the ice shelf, icebergs break off from the edge nearest to the sea.



Australians have been interested in Antarctica for many years, as is naturally to be expected when the neighbouring positions on the map of these two lands is noted. The Australian Antarctic Expedition of 1911-14, led by

(CONTINUED ON PAGE 38)

N stands for NESTLÉ'S SUNSHINE MILK
That creamy powder, smooth as silk.
It makes cakes and goodies quite supreme.
For Sunshine milk has all the cream.

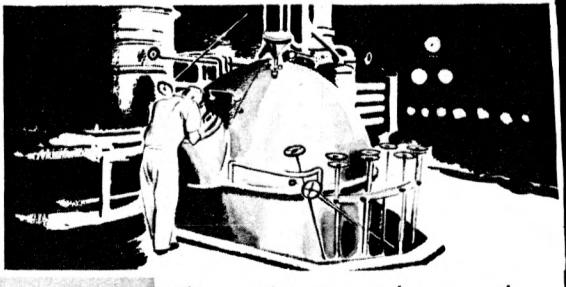
take a trip with Sammy the spaceman, to

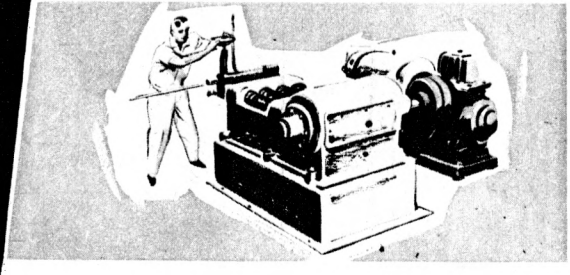
Discover the (5-stage) process that transforms milk into creamy powder!

Learn how rich country milk becomes the pure, creamy powder you see in the "Sunshine" tin. It's a fascinating story, and the "Sunshine" project book, "To the Milky Way," even tells you about the processing operation.

At the "Sunshine" pastures, Sammy sees healthy, well-fed cows grazing in rich pastures. They are milked twice a day, and the milk taken to the Nestlé's Condensery.

After testing and analysing the milk, it is pasteurized for extra safety. It is then homogenized to distribute the cream content evenly, which makes "Sunshine" milk so easy to digest. The next stage is condensing and drying, to remove the water content.





The spraying process that turns the milk into a fine powder takes place in a tower called the "Egron," where a current of warm air extracts the water content. From here the "Sunshine" milk powder is automatically carried to the filling machines that measure the quantity accurately into tins.

17 Foveaux Street, **SYDNEY**
P.O. Box 55, Broadmeadow, 2N, **NEWCASTLE**
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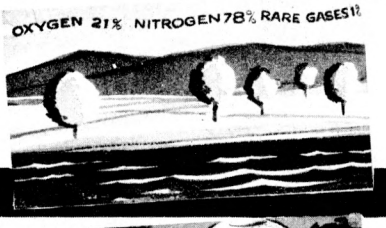
188 Barry Parade, **BRISBANE**

Send for the FREE Project Book, "To the Milky Way with Sunshine", to help with your Alphabet Competition Entry! Send your name and address, in an envelope marked "Project Book" to the Nestlé Company (Australia) Limited at the address nearest to you .

NE805/61

O is for OXYGEN, the GAS most essential, For saving of life, and cutting of metal. Our doctors and nurses and all industry, Use oxygen cylinders FROM C.I.G.

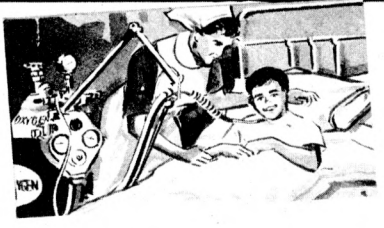
In 1774, Joseph Priestly, an Englishman, discovered oxygen when he found that a candle burned more brilliantly and a mouse lived much longer in this new type of gas. But not until many years later were the wonderful properties of oxygen used for industry and medicine.



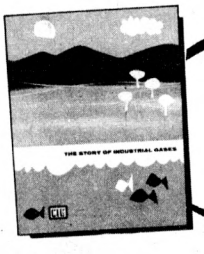
Oxygen is produced by a very complex process of separating it from air, of which it occupies 21%. The other gases, nitrogen (78%), argon helium, neon, krypton and xenon (1%) are also manufactured during this separation process, and used for such things as illuminating advertising signs.

CIG is Australia's largest manufacturer and supplier of industrial gases. Large amounts of oxygen are delivered to customers in a liquid form, and evaporated for use when required. Here a tanker of liquid oxygen is shown filling up a customer's storage tank.

When oxygen is mixed with another gas, acetylene, it produces the hottest flame known to man . . . 6,000°F. This flame will cut, weld and shape steel, and is used for making ships, bridges, aircraft, electrical appliances and thousands of other metal products.



Oxygen is the life-giving gas in the air we breathe. It can very often restore breathing stopped by shock or drowning, and help in cases of heart trouble or bodily weakness. In hospitals and nursing places, large quantities of this important gas are used.



To help you with your competition entry, here is a new coloured booklet that explains how the different industrial gases are made. Write to CIG for your copy.

Here is how you address your letter.

THE ADVERTISING DEPARTMENT
C.I.G. LTD. 138 BOURKE RD.,
ALEXANDRIA, N.S.W.

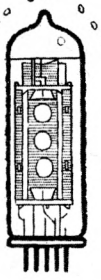
CIG

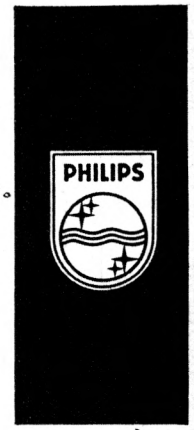
OPERATING COMPANIES IN ALL STATES OF THE COMMONWEALTH

Plan your project or essay now. Write for further information to the firms advertising.

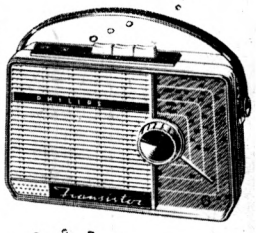
P *stands for PHILIPS who electrons do use*
In TRANSISTORS AND VALVES and cathode ray tubes,
It's told quite precisely how this can be done
In the "Incredible story of Phil Electron."

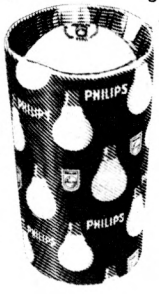
PHILIPS

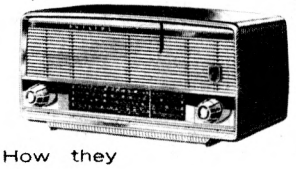




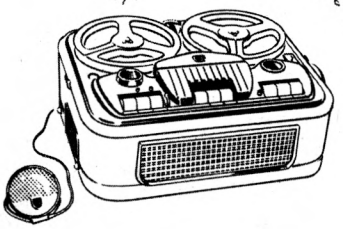
Electrons hate work! They like to sit in their holes all day and do nothing. Philips have the job of getting them out of their holes to do some work. There is nothing an Electron hates more than being out of a hole, so you've got to watch them very carefully or they jump into any old passing hole to escape. (Boy are they smart sometimes!!)

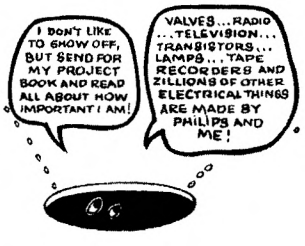


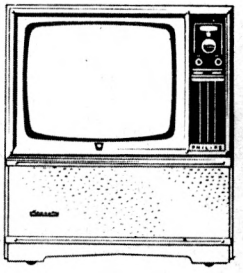




Philips are pretty good at chasing Electrons out of holes. How they do it is explained by Phil Electron, who is the character on this page. He's not very happy about the whole thing at all. . . "That's right, kill me with work," he said with a bitter twist round the corners of his mouth. But it makes a pretty interesting subject for one and all.







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Commence your essay or project now.

CHILDREN & ROAD ACCIDENTS in N.S.W.

Contributed by the Minister for Transport

Dear Boys and Girls,

I have been asked by the editor of your Trades Alphabet to write to you about road accidents. I accepted this request with very much pleasure because this matter of road safety is one in which I am most interested, and one which should be of particular concern to you. When I speak of road safety to you I am thinking of YOUR safety on the roads.

I am going to tell you first about what has happened on our roads during the past year, and then I hope to give you as far as I am able some advice to prevent you becoming involved in a road accident.

Someone has said that advice is one of the cheapest commodities in the world because everybody is willing to give it, but not many want to take it. However, when I tell you that the advice I am going to give you concerns your future, I am sure you will want to hear what I have to say.

Did you know that last year was the worst year for fatal road accidents in the history of our State? Nearly 1000 people died on our roads, and many, if not the majority of these people need not have died. The figures relating to children show that 4042 children under the age of 16 were injured in road accidents and 131 children lost their lives. These are alarming figures, and I am sorry to tell you that the pattern is similar throughout the whole of Australia. In Australia as a whole in 1959-60 there were 337 children under 16 killed and 11,157 children injured.

Now let me refer to the 200,000 little people who commenced school in Australia this year. Of these it has been estimated that 150 will die, and almost another 3200 will be injured as the result of road accidents before they reach the age of 15 years. Surely no one can be happy about such a forecast.

Australia is a young country springing to life, and in need of population for its future development. Each year many hundreds of thousands of pounds are spent to bring migrants to our land. When we look to the future no one can deny that you boys and girls are our country's best assets, and it is most distressing to me and the officers of my department when each year so many of our boys and girls who could have helped to develop our country are lost in fatal accidents on the road, and many many more injured, maimed, and made physically handicapped for the rest of their lives.

There should not be any need for me to tell you that the main reason you are at school and being trained is so that you may learn and fit yourselves for the future, when you will grow up and commence your careers. All this time spent, of course, is of no avail, if you are killed in a road accident. If you become one of the injured, what then? Many people make valiant efforts to overcome their physical handicaps, but isn't it much preferable to go through life without having lost a limb, or having suffered some other incapacity? It is possible to avoid most of the road accidents that occur, and that is my concern in writing to you. I do not want to see you harmed needlessly.

Let me tell you about some of the accidents that happen to boys and girls. Studies of the accident figures in New South Wales by experts reveal that in 1960, 1366 children met with serious injuries, and 57 others were killed while **walking on the roads.**

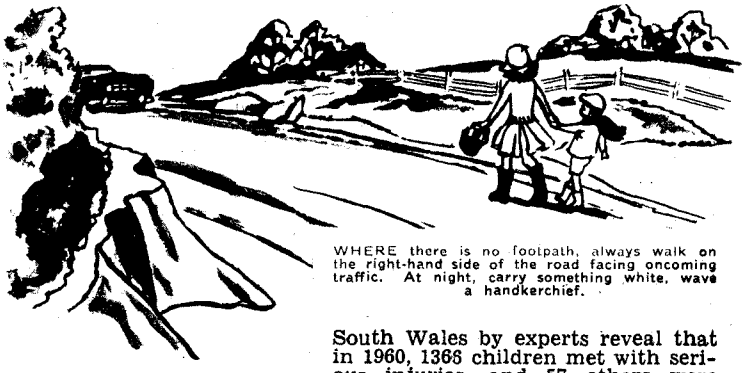
Stop and think how many children attend your school and then compare the number with 1423, the number of children killed and injured while walking on the roads, and then you will have some idea why I am concerned. The 57 children killed would represent considerably more than the number of scholars in one of our largest school classes. More than your class? Yes, of course, and all that many children killed in only one year while **walking on the roads.** Fatal accidents could happen to your classmates, Tom, Bill, Fred, and so on, but need not if care is taken.

I am also told that another 677 children were seriously injured and 25 killed in accidents involving **bicycles.** If you ride a bicycle, do you know the rules of the road? If you do not, or if you are not sure that you do, you should write to the Department of Motor Transport, G.P.O., Box 28, Sydney, and ask for a copy of the Bicycle Code to be sent to you.

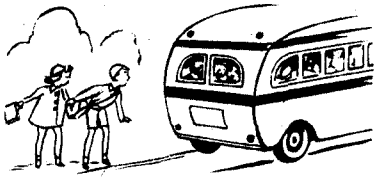
We must realise that motor vehicles have come to stay and help us in our busy lives. We must remember, too, that their numbers are ever-increasing. How many motor vehicles do you think are registered in New South Wales? You have probably had a guess. Did you guess as high as a million? Yes, there are more than a million. In fact, there are more than 1,150,000. When you know that so many motor vehicles are on our roads, does not that help you to understand why I am concerned for you and want you to be careful?

I want you to take notice of your parents when they tell you about the danger on the roads. As well as being more careful, I want you older boys and girls to help look after the safety of the younger children. They watch your behaviour on the roads and a good example set by you could help considerably in reducing the risk of accident to these little ones.

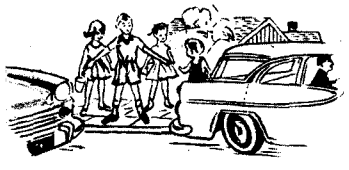
(CONTINUED ON PAGE 34)



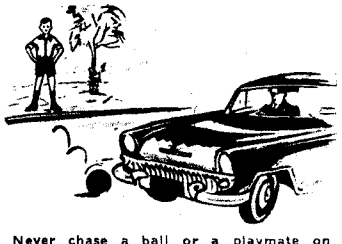
WHERE there is no footpath, always walk on the right-hand side of the road facing oncoming traffic. At night, carry something white, wave a handkerchief.



If you have to cross the road after getting off a tram or bus, always wait until you get a clear view of the road.



NEVER PLAY ON THE ROADS.



Never chase a ball or a playmate on to the road.

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It means the very best
And FORMICA, when you use it
Always stands the test.

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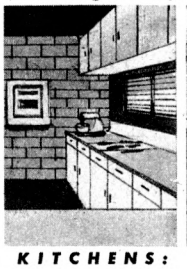
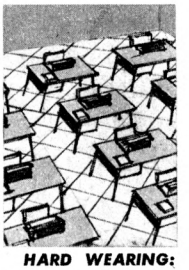
Throughout the ages man has utilised the gifts of nature to make things, but in the last half century the miracles of science have allowed him to create new materials — in plastic. One of the most important developments in this 50-year period was the invention of FORMICA Surfacing, with its amazing variety of uses and applications.

FORMICA Surfacing is a laminated plastic sheet, only 1/16″ thick, yet in many ways stronger than the toughest of metals, resistant to many chemicals. You will see FORMICA Surfacing everywhere— on kitchen tops, on walls, for panelling, on all furniture, in schools, shops, hospitals, factories, restaurants, bathrooms, planes, ships and trains.



KITCHENS: FORMICA work tops and panelling makes cleaning easier — looks brighter and lasts longer.

FURNITURE: Used on your furniture attractive FORMICA Woodgrains look like wood — don't need polishing.

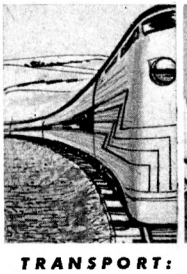


HARD WEARING: FORMICA Surfacing gives lifetime beauty and smoothness —doesn't chip or crack.

History of FORMICA surfacing

The history of FORMICA Surfacing began when a young American scientist named O'Connor made an important discovery in 1916. He found that sheets of paper dipped into resin, then heated and pressed, formed a plastic material in solid laminated sheet form. He had discovered a material combining exceptional wearing advantages with great strength.

The next step was to print on to material to obtain a decorative surface. This aim was achieved in 1939 by the use of Melamine resin and the final product was known as FORMICA Surfacing, now produced in a wonderful range of beautiful colours and patterns. It is an extremely hard-wearing surface which has a very long life.

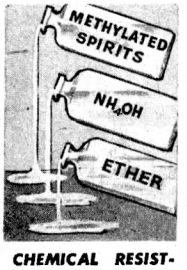


TRANSPORT: Planes, ships and trains are more colourful, maintenance costs reduced, thanks to FORMICA Surfacing.

SCHOOLS: FORMICA Surfacing is ideal because it is so easy to keep clean — resists scratching.

IMPACT RESISTANT: Falling plates make a noise but don't mark a beautiful FORMICA surface.

HEAT RESISTANT: Guaranteed to 310° F. — boiling water cannot harm the beautiful, smooth FORMICA surface.



CHEMICAL RESISTANT: FORMICA Surfacing is ideal for laboratories because its resistance to chemicals is better than other surfacing materials.

FREE!

Write now for "Man Makes a New Material"— the thrilling story of FORMICA *decorative laminated plastic.*

DON'T DELAY —WRITE TODAY!

Write to:
FORMICA PLASTICS PTY. LTD.
Duffy Avenue, Thornleigh, N.S.W.
Print clearly your name, address and the State in which you live.

® FORMICA is a Registered Trade Mark

MADE IN AUSTRALIA BY FORMICA PLASTICS PTY. LTD.

With YOUR help YOUR school can win a prize. See "School Gifts" on page 2.

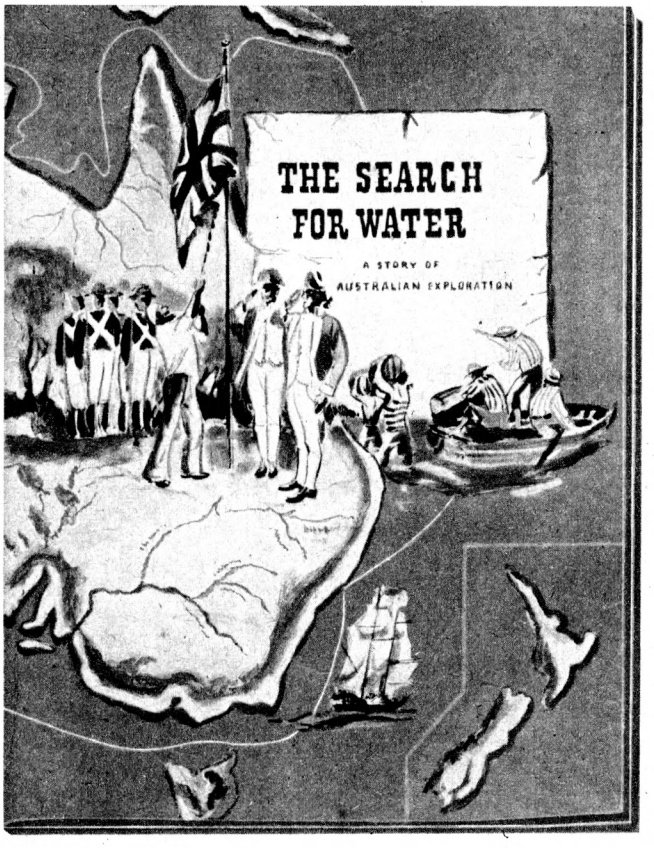
R *is for Refreshment,*
For Real enjoyment too.
Yes, ice-cold COCA-COLA
Is sheer delight all through.

DRINK Coca-Cola

BE REALLY REFRESHED

THE SEARCH FOR WATER

The search for water in Australia, which has been going on since 1788, is really a search for refreshment; refreshment of mankind, refreshment of the soil, of cattle and sheep, of crops, plants and trees. Everyone and everything created by Nature needs refreshment if it is to survive and flourish.



Coca-Cola is bottled throughout Australia by independent Bottling Companies under authority of The Coca-Cola Company.

"Coca-Cola" is the registered trade mark of The Coca-Cola Company.

It is true that as far as human thirst is concerned the word "refreshment" has gained a new meaning today. Down through the centuries, men have sought ways of blending water with other attractive and pure ingredients to produce beverages (drinks) which satisfied thirst but which gave people pleasure and enjoyment at the same time. Their aim was to make water *delicious* as well as satisfying.

Into your mind will immediately come the thought of Coca-Cola. Coca-Cola, enjoyed 65,000,000 times a day by 1,700,000,000 people in over 110 countries, is the world's most famous example of success in the search for a faultless beverage.

To get back to the great search for water in Australia, its history and adventure:

The Coca-Cola Export Corporation has published a new and exciting colour booklet called "The Search for Water", a story of Australian Exploration. You'll find it a great help in your school projects and essays, and it's FREE.

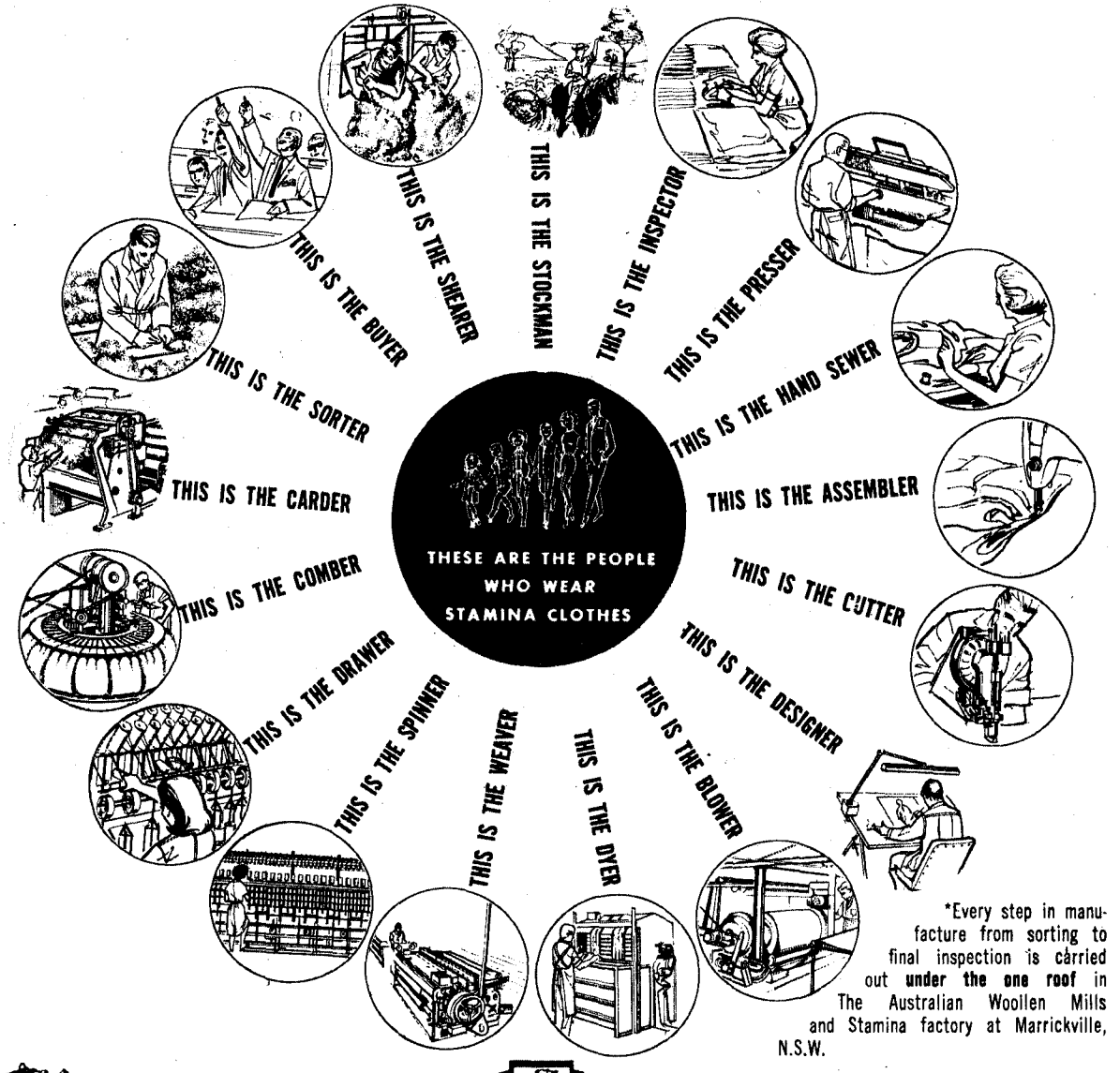
FREE

Write to:
THE COCA-COLA EXPORT CORPORATION
Post Office, Box 200, Crows Nest, Sydney, N.S.W.

(Don't forget to include your full name and address)

S stands for STAMINA
Best by a mile—
Made from CRUSADER
For sturdiness and style.

MEET THE PEOPLE WHO HELP MAKE CRUSADER CLOTH & STAMINA CLOTHES



*Every step in manufacture from sorting to final inspection is carried out **under the one roof** in The Australian Woollen Mills and Stamina factory at Marrickville, N.S.W.

Crusader CLOTH **Stamina CLOTHES**

Write to MR. CRUSADER, AUSTRALIAN WOOLLEN MILLS LIMITED, SYDENHAM ROAD, MARRICKVILLE, for a set of coloured cards showing how Crusader Cloth is made.

Write to MR. STAMINA, HOOPER & HARRISON PTY. LTD., 44 KING STREET, SYDNEY, for a book showing how Stamina Trousers are made.

Write to MISS STAMINA, HOOPER & HARRISON PTY. LTD., 44 KING STREET, SYDNEY, for a book showing how Stamina Girls' Tunics are made.

Plan your project or essay now. Write to the firm for their literature.

CHILDREN and ROAD ACCIDENTS

(Continued from page 30)

Again, to help keep you boys and girls free from accidents we have in New South Wales a system of road safety instructions provided by officers of the Road Safety Council and members of the Police School Lecturing Section, who visit the schools regularly to give talks to you. Your school teachers assist in imparting this knowledge.

When these officers go to your school, listen to them carefully and learn what you can, and then put into practice what you are told. These people are your friends.

Always bear in mind that roads are for motor vehicles except when pedestrians have to cross. Footpaths are for people, but remember motor vehicles sometimes have to cross footpaths.

Let me ask you to pay special attention to just a few matters. Do not run carelessly across the road, particularly from behind parked vehicles. If you have alighted from a bus, do not run across the road from behind the bus. Never walk along the roadway where there is no footpath; always keep to the right-hand side of the roadway, facing oncoming traffic. If it is an unlighted roadway at night time and you are not carrying a lighted lamp, wear or carry something white, as it is very difficult for motorists at night to see a person in dark clothing. If there is a marked footcrossing provided, always use that crossing. Never play on the roads. Take notice of the various traffic signals and obey them. If you ride a bicycle obey the rules.

I hope you have learned something from what I have had to say. I know that if there are fewer accidents in the future, I will have you to thank and I will be pleased to know that this letter to you has been worth while. Thank you for reading what I have written. It is rather a long letter for you, but I regard the matter very seriously, for I have your welfare at heart.

Yours faithfully,

Minister for Transport.

PEN FRIENDS

Letter writing can be a means of widening your interests in life, of making new friends, and of improving your general knowledge in many ways. Why not make a start now and get a Pen Friend in another country?

If you would like a "Pen Friend" of your own age and sex in the United States of America, send your name, sex, age, and address to one of the Australian-American addresses given below. Your name will then be sent to America for a suitable Pen-Pal from whom you should receive a letter in a few months' time.

Write to:

THE AUSTRALIAN-AMERICAN ASSOCIATION

151 Elizabeth Street, Sydney
NEW SOUTH WALES

405 Collins Street, Melbourne
VICTORIA

35 Charlotte St., Brisbane
QUEENSLAND

12 Pirie Street, Adelaide
SOUTH AUSTRALIA

63 George's Terrace, Perth
WESTERN AUSTRALIA

JUNIOR RED CROSS

Is there a JUNIOR RED CROSS CIRCLE at your school? Are you a member?

If you want to know how to form a CIRCLE at your school, please write to:— The National Secretary, Junior Red Cross, 122 Flinders Street, Melbourne, VICTORIA. Also ask him about the Junior Red Cross magazine, "JUNIOR."

A MESSAGE TO HEADMASTERS

The firms in the "Alphabet" make available material to assist the children in the preparation of entries for our competitions. This material can be of great assistance, and the children are invited, both in the "Alphabet" rhyme pages and in the details of our competitions, to write to the firms in question for it.

Pupils are thus stimulated in their research activities, and the Social Studies are correlated naturally with English Composition when children feel the need to write and address a business letter, and are then taught to do it.

We thank you for your co-operation in bringing our competitions to the notice of the children and for your helpful suggestions in the past.

A MESSAGE TO TEACHERS

From the announcements in the "Alphabet" you will see that this year we have decided to allot £1295 in prizes—50 per cent. to the competitors and 50 per cent. to schools.

We realise that the children will consult you with regard to their entries and we are glad to show our appreciation by making this money available for libraries and other facilities.

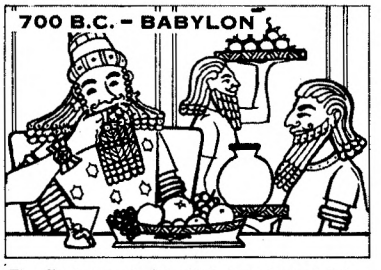
Please do not make any preliminary selection of entries. We will reimburse you on application for expenses incurred in sending them all on to us.

RETURN OF PROJECTS

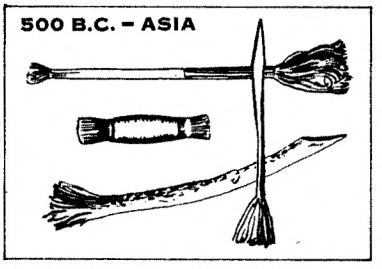
Senior and Junior Projects will be returned to the schools early in February if the pupil writes "Please Return" on the top right-hand corner of the Junior Project and on the inside back cover of the Senior Project Book.

T is for Toothbrush
To help fight decay.
I use MY TEK TOOTHBRUSH
At least twice a day.

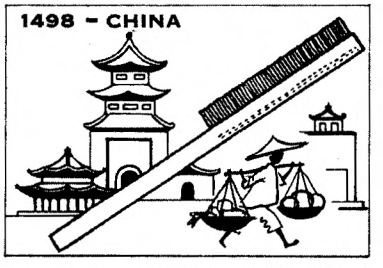
Tek



The first record of teeth being cleaned dates back to the Babylonians. Their method was to rub the teeth with cloth wrapped around a finger The Greeks and Romans used a tooth-sponge.

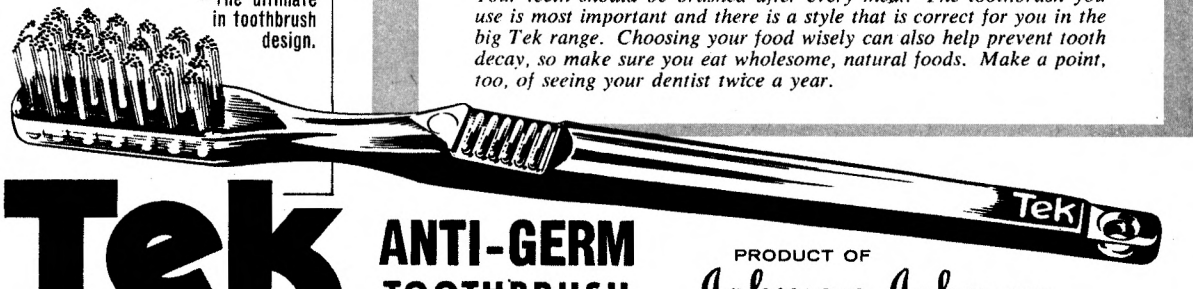


The first real brush was evolved in Asia around 500 B.C. This was the chewstick, a fibre stick with frayed ends. The chewstick is still used by Hindus and Mohammedans.



The next advance was not until the Chinese made the first "modern" toothbrush. This consisted of horsehair set in bone or wooden handles. Later pig bristles replaced horsehair.

AND NOW **Tek** ANTI-GERM – the ultimate in toothbrush design.



Tek **ANTI-GERM TOOTHBRUSH**

PRODUCT OF Johnson & Johnson

THE BEST TOOTHBRUSH MONEY CAN BUY

FREE

This informative free booklet will help you with your project. Write to TEK, Johnson & Johnson Pty. Ltd., Box 3331, G.P.O., Sydney.

THE STRUCTURE OF OUR TEETH

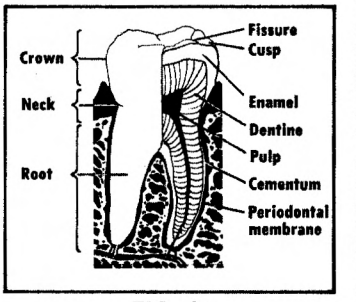


FIG. 1:

The crown of the tooth is covered by a protective layer called enamel. Below this is an ivory-like substance, the dentine, and then the dental pulp, commonly known as the nerve. This dental pulp contains dentine-forming cells, plus nerves and blood vessels connecting with the nervous and blood networks of the body. The periodontal membrane acts as a cushion, absorbing shocks caused by eating.

WHAT CAUSES DECAY

Sweets or similar foods contain carbohydrates which cling to the teeth and form decay-forming acids. Decay begins in hard-to-clean places.

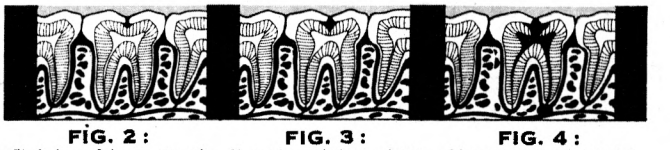


FIG. 2: First stage of decay - enamel penetrated and dentine attacked. Cold or sweet food may cause toothache.

FIG. 3: More advanced stage - decay spreading through dentine, pulp inflamed. Usually causes severe pain.

FIG. 4: Advanced stage- pulp infected, abscess formed. Gives extreme pain and usually tooth must be extracted.

HOW TO PREVENT DECAY

Your teeth should be brushed after every meal. The toothbrush you use is most important and there is a style that is correct for you in the big Tek range. Choosing your food wisely can also help prevent tooth decay, so make sure you eat wholesome, natural foods. Make a point, too, of seeing your dentist twice a year.

Girls and Boys. Whatever your age, you have a chance to win one of the hundreds of prizes offered. See pages 4, 42, 44.

U

is for ULTRA
Which really means the top.
But in footwear there's another name,
And THAT, of course, IS DUNLOP.

FROM REEDS TO RUBBER IN 10,000 YEARS

"Shoes" worn by primitive man were only bundles of reeds wrapped around his feet, but the trend in footwear today is for attractive comfortable shoes. For this we thank rubber, and many new synthetics.

Rubber was used for footwear many hundreds of years ago. Christopher Columbus, on his voyage to the New World in 1492, noticed Indians making shoes. They covered their feet with a thin film of latex drawn from the rubber tree. After applying many coats of latex, and letting the substance dry, the Indians had shoes, which although crude, were effectively waterproof.

Columbus carried the latex back to Europe, but almost 400 years passed before two men, on opposite sides of the Atlantic discovered a way to treat rubber and prevent it from going soft and "tacky" in the summer and hard in the winter. The men were Thomas Hancock, an English coach builder and Charles Goodyear, an American, who in 1844 developed the process known as vulcanisation.

By mixing rubber with sulphur and heating it, Hancock found he could make soft, flexible, resilient rubber or hard, rigid rubber known as ebonite or vulcanite, by varying the length of heating time.

Since those days, Dunlop Rubber Australia Limited—manufacturers of Australia's greatest range of footwear—has developed the use of rubber in our shoes. Many styles are available, including waterproof knee boots, safety boots for men working in heavy industry, shoes for all sports, school shoes, and fashionable casuals for women. As well as making boots and shoes, Dunlop produces many of the soling materials used on our shoes.

We've come a long way since reeds were used—and Dunlop has helped to make our life happier—and our feet healthier.

CHILDREN

Rubber is an ideal subject for your project. Write to Dunlop at one of the addresses below for your project book 'Rubber in our Lives'.

Please print your name and address and ask your parents to check for accuracy.

DUNLOP RUBBER AUSTRALIA LIMITED

VICTORIA:
108 Flinders Street, Melbourne.
NEW SOUTH WALES:
27-33 Wentworth Avenue, Sydney.
QUEENSLAND:
Centenary Place, Brisbane.
SOUTH AUSTRALIA:
153 Flinders Street, Adelaide.
WESTERN AUSTRALIA:
424 Murray Street, Perth.
TASMANIA: 27 Argyle Street, Hobart.
18 Paterson St., Launceston.

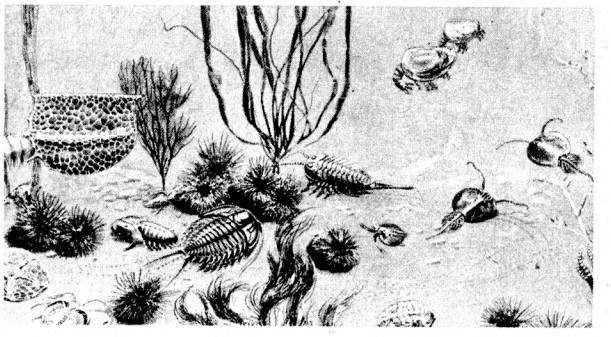
YOU CAN'T BEAT DUNLOP

Literature has been prepared by the firms advertising to help you with your project. Write to their addresses.

V *is for the VARIETY AND VALUE*
Of products we use every day,
Many have OIL as their origin
With the best to you the MOBIL way.

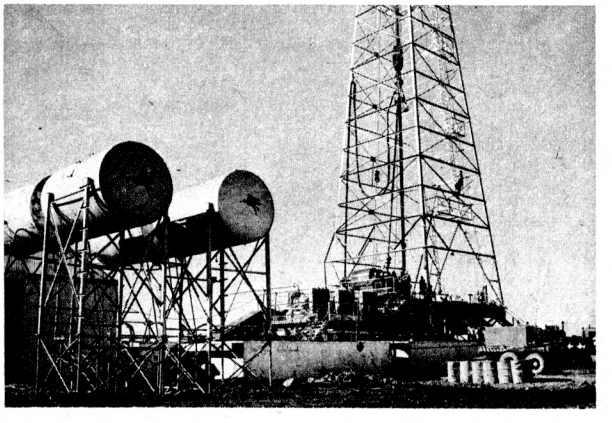
Mobilgas

HOW OIL MAKES YOUR WAY OF LIFE The story of oil is a story full of romance which dips deep into the dim dark ages of primaeval creatures and strange vegetation. It is the story of advancement, full of discovery and historic achievement through research. The use of oil and its derivatives has reached such proportions that it has become an essential part of your every day life. Expert Mobil technicians are continually refining and experimenting, formulating new and more wonderful products from oil. As each huge tanker arrives from far away ports with the oil, the job of refining and distribution begins. From these processes come Petrol, oil and greases plus a multitude of products which in turn become essential to the manufacture of motor tyres, perfumes, plastics, linoleum, road making and hundreds of other products.
The whole story of oil, its discovery and its uses in your everyday life, is far too complex to unfold here. To arm those who seek authoritative knowledge, MOBIL PUBLIC RELATIONS SERVICE has compiled an exciting booklet — THE MAGIC OF OIL. You can have it free of charge for your own project, so send for it today.

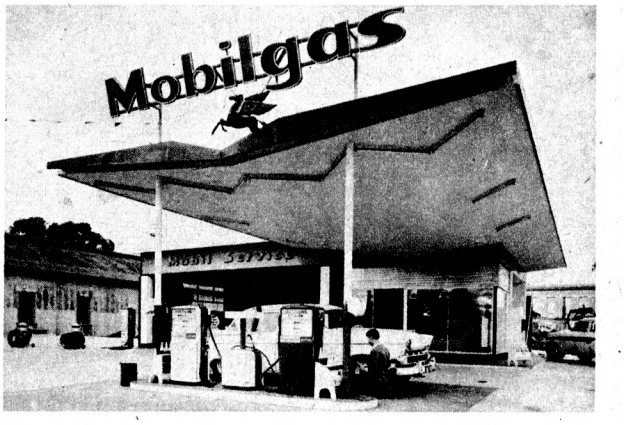


THE ORIGIN OF OIL. Millions of tiny plants and animals thrived in the warm waters of ancient seas. They formed the organic material from which crude petroleum developed.

THE FIRST OIL WELL. Titusville, Pennsylvania, the site of the world's first successful wooden derrick and drill. This is perhaps the greatest milestone in the modern oil industry.



OIL IN AUSTRALIA. Mobil not only carry out constant research programs, but also continue to search for oil throughout Australia. No. 2 well Port Campbell, Victoria.



OIL IN USE. Here is a typical Mobilgas Service Station. You can see in any city of Australia. This huge chain brings motorists petrol, oil and grease plus trustworthy service.

Write for the Free booklet "The Magic of Oil"

C/O the PUBLIC RELATIONS OFFICE at the Mobil Centre in your capital city—

SYDNEY BOX 1592 G.P.O. ADELAIDE BOX 681E G.P.O. MELBOURNE BOX 4507 G.P.O.
PERTH BOX 10A G.P.O. BRISBANE BOX 173C G.P.O. HOBART BOX 602 G.P.O.

Trust your Mobilgas Dealer — He's the car care expert

Plan your Project and Essay now. Entries close 1st October.

ANTARCTICA

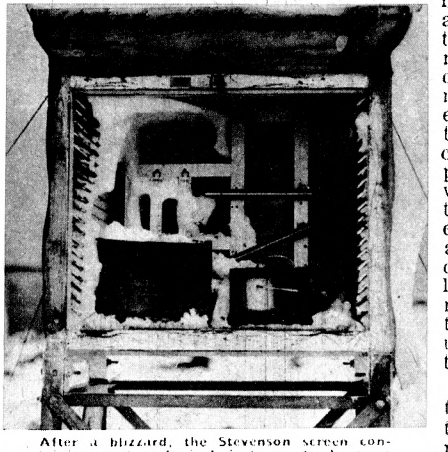
Douglas Mawson, with Captain Davis as second-in-command, was the early highlight in Antarctic exploration by Australians. In 1929-31, Sir Douglas Mawson led a combined British, Australian, and New Zealand Antarctic Research Expedition in the "Discovery." On this expedition a plane was used for the charting and discovery of parts of Australian Antarctic Territory.

In 1947, the Australian Government established the Australian National Antarctic Research Expeditions (ANARE). This organisation began by setting up scientific stations at Heard Island and Macquarie Island, sub-antarctic islands 800 and 900 miles, respectively, north of the Australian sector of Antarctica. In 1949, the Antarctic Division of the Department of External Affairs was created to administer the expeditions.

In the summer of 1953-54 the first permanent Australian station on the continent was established in Australian Antarctic Territory by an expedition led by Phillip Law, Director of the Antarctic Division. It was named after Sir Douglas Mawson. In the summer of 1954-55 Heard Island station was closed down, but in 1956-57 a second mainland station, Davis, was set up in Australian Antarctic Territory. A third mainland station was added early in 1959, when Australia accepted responsibility for the continued operation of Wilkes. This station had been established by the United States in the International Geophysical Year, 1957-58, when many nations co-operated in Antarctica and other parts of the world in a plan for research into geographical problems.

Mawson, Davis, and Wilkes, the three Australian stations on the Antarctic mainland, are between latitudes 66deg. and 68deg., and approximately 1500 miles from the South Pole. Macquarie Island is further away at 54deg.; it is 2500 miles from the Pole, and 1000 miles from Tasmania.

Each year about Christmas two polar ships take a new team of between 70 and 80 Australians to spend a whole year at the ANARE stations. The larger stations have as many as 30 buildings. There is a central core of sleeping, living, and eating quarters, surrounded by buildings necessary to the scientific programmes and the maintenance of the base; radio masts, fuel dumps, food stores, and other establishments. Electricity is generated by diesel electric generators. The huts are insulated and warmed. Diet has been carefully planned to meet the rigorous conditions both at the stations and on field journeys. Suitable polar clothing has been designed, and is worn by the men. This is very important, because the air can be very cold—a temperature as low as minus 127.5 degrees Fahrenheit has been recorded in Antarctica. Transport consists of large tractors and smaller vehicles called "weasels," while dog-hauled, and sometimes man-hauled, sledges are used for lighter loads and shorter field journeys. Beaver and Dakota aircraft have been used for aerial survey, and the transport of men. Helicopters are used on the relief ships for coastal exploration.



After a blizzard, the Stevenson screen containing meteorological instruments becomes clogged up with snow.

Antarctica is believed to have great mineral wealth, and to contain the greatest coal deposits in the world. These resources, however, are not yet commercially available because they are often buried under thousands of feet of ice.

There are no land animals on the continent of Antarctica, but around the coast marine animals, such as seals and penguins, are plentiful. The surface waters of the seas surrounding the continent are richer in phosphates and nitrates than any other; consequently there is an abundance of marine life ranging in size from microscopic plankton to whales of great bulk. Strong steps are being taken, under the Antarctic Treaty, to conserve the unique and interesting mammals and birds living in this area, especially the seals, penguins, and birds of flight which breed and live around the coastline which extends for 18,000 miles.

The scientific programmes of ANARE have been extended a great deal since the commencement in 1948

(continued from page 26)

of studies in meteorology, cosmic rays, and auroras at Heard Island and Macquarie Island. Later on, further studies were added, such as geomagnetism, seismology, and radiophysics. By 1956 Mawson and Macquarie Island had become well equipped geophysical laboratories.

Meteorology is still one of the most important studies. Not only is this contributing to basic knowledge of the circulation of the atmosphere, but the observations and their interpretation are improving the efficiency of weather forecasting in Australia and other countries in the Southern Hemisphere. In addition, Australia has added to the network of meteorological stations in Antarctica by establishing two automatic weather stations which are unmanned, but send out radio signals, giving weather information, to be received by some of the manned weather stations.

In glaciology, ANARE scientists are studying the "balance-sheet" on the continent of the accumulation of ice and snow against wastage due to evaporation, melting, and blowing away of snow into the ocean. This is of great interest in long-range studies connected with theories of climatic change.

In the upper atmosphere measurements of the intensity of cosmic radiation provide information about interplanetary space and disturbances propagated from the sun to the Earth's upper atmosphere. The nature and frequency of auroras are closely studied. The Earth's magnetic field lines from polar regions extend far out into space, where they trap and hold electrically charged ions and electrons. These phenomena are studied together with the aurora, which occurs between 50 and 500 miles above the earth. Some of these measurements are of immediate practical use for determining appropriate wave lengths and times for worldwide radio communications which involve the reflection of the waves from the under-side of the ionosphere back to the Earth.

Australian biologists in Antarctica study the manner of living and the environment of the seals and penguins and other birds which populate or visit the coastline. The scientists also study the physiology of these animals, as well as of man when he lives in this extremely cold climate. A great deal of work has yet to be done in the study of the microscopic organisms known as plankton, which occur in immense numbers, as well as the fish life of the southern oceans, all of which provide food for larger species of marine animals.

So much of the knowledge which has been gained in recent years is so specialised, and is so scattered in the scientific reports of many nations, that it has not yet found its way into a more condensed and general form in encyclopaedias, geography, and other school textbooks. With the participation of the many representatives of the nations working in Antarctica, however, newspapers and the general public are now having their interest stimulated. This should all lead to a greater understanding by the peoples of the world of the importance of a continent which not so long ago was practically unknown.

Younger Australians can be proud of the pioneer work done by their countrymen in Antarctica. In the early stages they followed the heroic traditions of such intrepid British explorers as Scott and Shackleton. Later, as more scientific and technical advances were made, and greater organisation became possible, Australians have again been among the leading nations in Antarctica, exploring and charting the still unknown geographical features, as well as carrying out scientific investigations of the highest importance. Australian boys, still at school, could do worse than hope for fitting into their own career a year's hard work in the great white continent. In doing this they would be contributing something worth while to the efforts of their own country, as well as to the success of the great experiment in international co-operation which has become possible under the Antarctic Treaty.

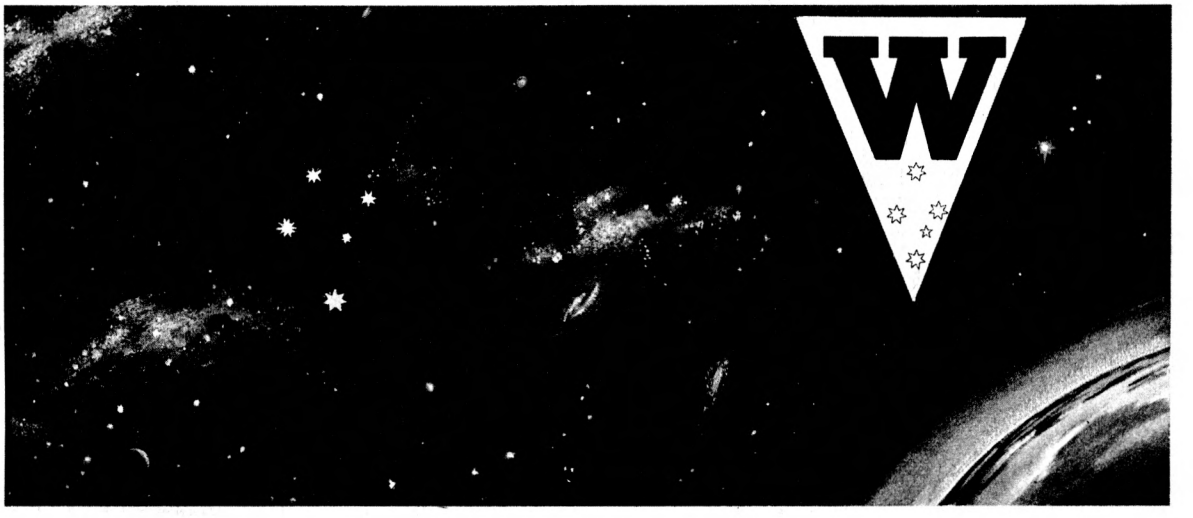
Plan your project or essay now. Write for further information to the firms advertising.

W *is for WOOLWORTHS*

Known throughout the nation
For lower prices, quality,
And honest reputation.

WHY THE SOUTHERN CROSS IS PART OF WOOLWORTHS' EMBLEM

Woolworths' emblem includes the Southern Cross as a vital part of its design, because it is the symbol of Australia and New Zealand. Woolworths is entirely an Australian and New Zealand owned company.



The Southern Cross is on the edge of a gap in the Milky Way called the "Coal-Hole." It lies in the heavens about one-third of the way between the Southern Celestial Pole and the Equator. In the Northern Hemisphere it's seen only during April and May, south of lat. 30° N. Two of its neighbouring stars, "Alpha" and "Beta," are known as the "pointers." A line drawn through them always passes close to the head of the Cross. The Southern Cross reaches its highest point in April and May. At Canberra between 8 p.m. and 11 p.m. in these months it is directly overhead. About the same time in the evenings of October and November the Cross lies low on the Southern horizon. It is then visible from almost any part of Australia north of lat. 28°.

An astronomer named Royer in 1679 first officially segregated the Southern Cross and named it "Crux." It was well known many centuries earlier. Chaldean astronomers first sighted it about 3,000 years ago. They lived in the country we now know as Iraq.

Australian Aboriginals many years ago believed the Southern Cross was a giant spirit tree on which souls could climb to heaven. Today some of the more uncivilised tribes still in existence believe it to be a great spirit eagle that soars across the heavens.

Both the Australian and New Zealand flags incorporate the Southern Cross in their basic design. All five stars are used on the Australian flag in conjunction with an extra seven-pointed star. New Zealand uses only four of the Southern Cross stars, leaving out the small inner star altogether.

WOOLWORTHS

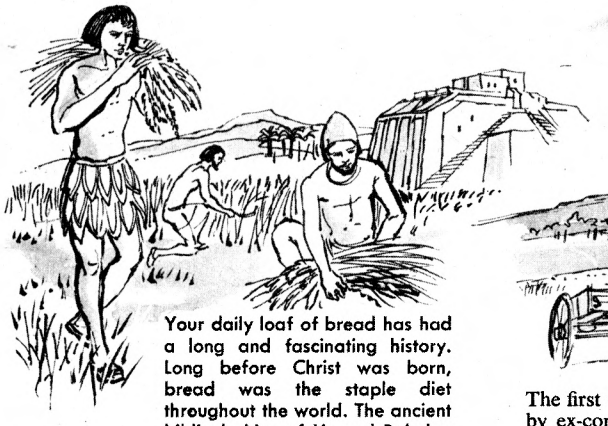
THE NATION'S SHOPPING CENTRE

DOING A PROJECT OR GIVING A LECTURE?

Just by asking, you can have a large wall chart telling the full story of "Modern Supermarketing" in illustrated detail. It's ideal for hanging on the wall or cutting up for a project. Write to Woolworths' Education Officer in the capital city nearest your home.

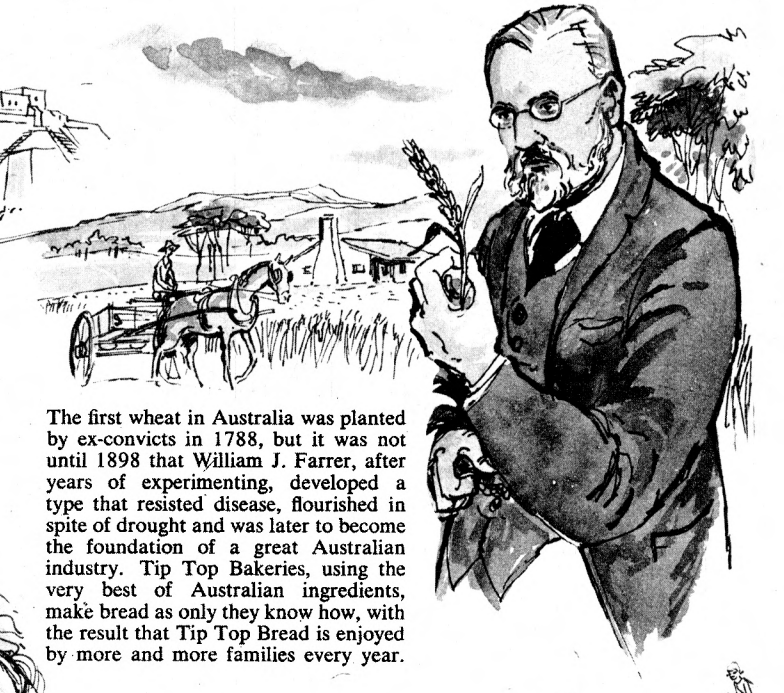
X *is for 'XTRA,*
And as the baker said,
It's the extra flavour
You enjoy in TIP TOP BREAD.

FOR CENTURIES BREAD HAS FED THE WHOLE WIDE WORLD



Your daily loaf of bread has had a long and fascinating history. Long before Christ was born, bread was the staple diet throughout the world. The ancient biblical cities of Ur and Babylon grew wheat and baked bread for their daily food.

Throughout the ages, bread has changed the course of history. The French revolutionists cried out for bread and thousands died from lack of it. Even Napoleon, the famous French general, was turned back from Moscow for want of it.



The first wheat in Australia was planted by ex-convicts in 1788, but it was not until 1898 that William J. Farrer, after years of experimenting, developed a type that resisted disease, flourished in spite of drought and was later to become the foundation of a great Australian industry. Tip Top Bakeries, using the very best of Australian ingredients, make bread as only they know how, with the result that Tip Top Bread is enjoyed by more and more families every year.

Just one slice of bread helps build up your energy supply. Energy is probably your most important need . . . it keeps a swimming star in top form throughout the season.

You need energy for your studies, too. Energy makes you ready to play after school even after a long day in the classroom . . . keeps junior tennis stars really on the ball.

BREAD GIVES YOU ENERGY TO DO THINGS . . .

Tip Top especially fine BREAD

Tip Top

the bread of fine flavour!

FREE PROJECT LITERATURE

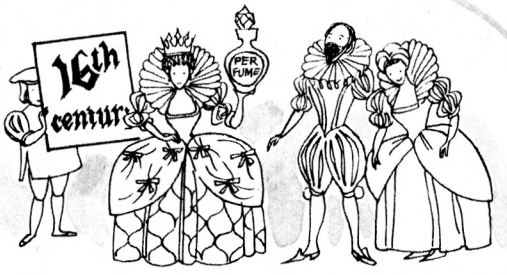
Write to the nearest Tip Top Bakery in your State's capital city for FREE literature, which has been specially prepared to assist you in your studies.

Baked only by the quality bakers of Australia.

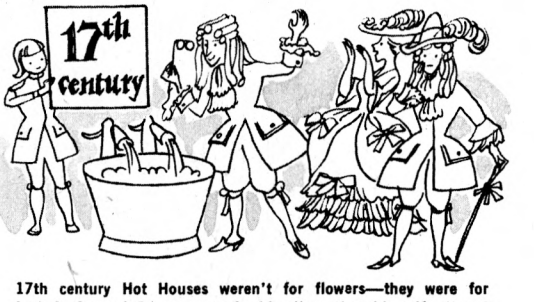
Commence your essay or project now.

Y

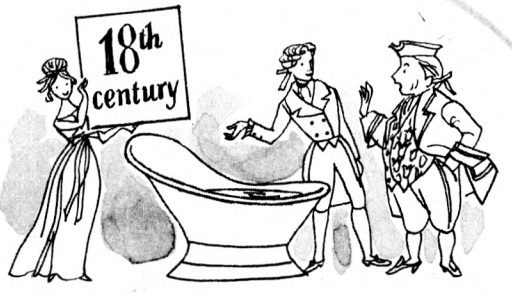
is for Youngsters just like you,
Who know what Rules of Hygiene mean.
Before FINE LEVER SOAPS were made,
The world was never so clean.



"Her Majesty hath a bath every three months, whether she needeth it or no." A medical man wrote this in admiration of Queen Elizabeth I (1533-1603). But Henry IV of France—who reigned at the time—was not so fond of bathing. In fact, he thought it could be dangerous! So for safety's sake he usually had a doctor standing by.



17th century Hot Houses weren't for flowers—they were for baths! Samuel Pepys wrote in his diary that his wife "went . . . to a Hot House to bathe herself." A bathroom of your own was unheard of—until the Duke of Devonshire installed one. What a sensation! It actually had taps—and one was for hot water!



"The very latest, sir!" But Dr. Samuel Johnson, the most prominent writer of his time (1709-84), simply wasn't interested in bath tubs. He advised his friend to "let well alone and be content." "I hate immersion," said Dr. Johnson. But today all of us get real pleasure from our daily bath or shower.

Remember Charles Kingsley's "Water Babies"? And how sooty Tom found himself in Ellie's pretty room? "Tom had never seen the like . . . white bed-curtains . . . snow-white coverlet . . . snow-white pillow . . ." Such cleanliness amazed him. Chimneysweeps had no fresh, washed sheets to pop into at night, like you have nowadays.

OLD FATHER TIME HAS WATCHED WASHING GROW UP

It certainly has developed since the days of Good Queen Bess. In the 16th century, not even the Queen herself had such lovely, fragrant soaps as you have today — soaps like Lux and Lifebuoy. The Palace laundress would have found her work much easier, too, if she had had our modern, efficient soaps, powders and liquids . . . Sunlight, Lux Flakes, Rinso, Omo and Lux Liquid.

WE CAN HELP YOU WITH YOUR PROJECT
Write in for your free booklet, **"Soap—Your Servant"** to:
Lever Brothers Pty. Limited, G.P.O. Box 7061, Sydney.

LB.193.TAFP

Girls and Boys. Whatever your age, you have a chance to win one of the hundreds of prizes offered. See pages 4, 42, 44.

THE PROJECT COMPETITIONS

A JUNIOR PROJECT for pupils under 11 years of age on 1st October, 1962.

B LOWER SENIOR PROJECT for pupils under 13 years of age on 1st October, 1962.

C UPPER SENIOR PROJECT for pupils 13 years and over on 1st October, 1962.

MR. V. J. TRUSKETT, B.A., Deputy Director of Primary Education, N.S.W., presenting a prize to one of the successful competitors in the Alphabet Competitions.

WHAT TO DO

1. First of all read the Alphabet through from the beginning to the end. It contains valuable information. Whether you are going to do a Junior Project or a Senior Project, choose from the products featured under the rhymes or on the covers two or three products in which you are interested.

2. Write to the manufacturers of these products and ask for their booklets. These booklets have been specially prepared to help you with your school work and with your projects.

3. When you have studied the booklets, you will then choose the product that interests you most, and do your project on that one. You will be able to find more about your subject in your school library, from magazines, and newspapers. Also, discuss your subject with your parents and friends. If possible, visit the factory.

4. Take a large envelope or folder and put into it all the information and illustrations you can gather. Ask yourself questions about the product such as: Of what is it made? How are the materials produced? Where obtained? Is there a history about the product? Write out your answers to these questions.

5. When you have collected all the information you can, you should arrange it in order, along with the illustrations, and then you will be ready to start your illustrated story of the product for a Senior or Junior Project.

A — FOR JUNIOR PROJECT. Do your project on a sheet of cardboard or brown paper about 36in. x 30in.
On the top right-hand corner of your sheet write your full name and your home address and the name of the State, such as N.S.W., Vic., S.A., Qld., W.A., Tas., and under this address write the name and address of your school, the date and your age. Please ask your teacher to sign your entry. Send your entry to the address given on page 44 by the 1st October, 1962.

B and C — FOR SENIOR PROJECTS, Lower and Upper. Do your project in an exercise book or drawing book. Place the illustrations on the left-hand pages, and your story of the project on the right-hand pages.

On the first page of your book write your full name (Surname First) and address, giving the name of the State. Under this write the name and address of your school. In the centre of the page, under these addresses, print the name of your Project, the date and your age.

On the next page give the headings of the chapters of your book. Illustrate each chapter with cuttings, diagrams, and drawings. Please ask your teacher to sign this page. Send your entry to the address given on page 44, not after 1st October, 1962.

FOR PRIZES — SEE PAGE 44

Z *is the ZEAL that you'll want to apply*
To learn from these rhymes — do give it a try!
They're fun, instructive — all about NYLON
The best in Australia — **BRĪ-NYLON** *and* **BRĪ-LON***!*

Y is for Yarn, not the kind that you tell,
But the yarn that is spun
to make Nylon so well!

X marks the spot in a Bayswater*glade
Where Australia's best quality
nylon is made!

W is for Water, an integral part
Mixed with coal and
with air to give Nylon its start!

V is for Versatile which aptly portrays,
Inimitable Nylon—used SO many ways!

U is for U.S.A. 'Twas here years ago
That science discovered the
Nylon we know!

T is for Tough—tenacious as well,
Descriptive of nylon it's easy to tell.

S for the Secret of Nylon's success—
Lightness and toughness are
two points to stress!

R is for Nylon's Resistance to Rots,
From mildew and
dampness, and insects like moths!

Q is for Qualities—dozens no less,
Accounting for Nylon's fantastic success!

P is for Properties which all people seek,
And Nylon has many—it's really unique!

O for the Oxygen scientists use
To make Nylon from chemicals—
takes lots of clues!

N of course is the letter for NYLON—
The best garments made
are **BRĪ-NYLON** and **BRĪ-LON**!

M for the Many things Nylon produces
For fashion and industry—300 uses!

L is for Lightness—a feature ideal,
For its size and its weight
Nylon's stronger than steel!

K is for Knitwear that's made out of Nylon,
So soft and so friendly—
Australia's own **BRĪ-LON**!

J is for Judging the quality of Nylon—
Just look for the label
BRĪ-NYLON or **BRĪ-LON**!

I is for industry—heavy and light
And Nylon is used
in them both day and night!

H is for Hosiery (stockings to you),
Where Nylon first made its fashion debut.

G is for garments to keep off the rain,
And versatile Nylon plays a big part again!

F is for Fast—that's the way Nylon dries,
A feature important to all who are wise!

E is for Ease of care—a feature of Nylon,
Quality labelled—
BRĪ-NYLON and **BRĪ-LON**!

D is for Denier the word that is used,
Describing the thickness of nylon produced!

C is for Chips—Nylon Polymer kind,
The way Nylon starts
is with these you will find!

B is for Beautiful patterns and shades,
In **BRĪ-NYLON** and **BRĪ-LON**
for all fashion trades!

A for Australia where this industry new,
Is a symbol of progress — and prosperity too!

*Bayswater, Melbourne, home of British Nylon Spinners (Australia) Pty. Ltd

NYLON—a new and vital Australian industry

Children! Write for further information about this man-made wonder fibre and make this fascinating subject your project. Send your name and address to: "PROJECT" British Nylon Spinners (Australia) Pty. Ltd., 224 Queen Street, Melbourne.

LIST OF PRIZES

Altogether £1295 will be given in prizes, 50% to competitors and 50% gifts to schools—£647/10/- for each. The prizes will take the form of orders on suppliers, and these will be forwarded to all prize-winners as soon as possible after the judging has been completed. The judge's decision will, of course, be final.

RESULTS—A complete list of prize-winners will be forwarded to all schools that send entries.

PRIZES: Handwriting £177/10/-; Essays £177/10/-

A. NEW SOUTH WALES—
ESSAYS: S'n A., £1/10/-, £1, 10/-; S'n B., £1/10/-, £1, 10/-; S'n C., £2/10/-, £2, £1; S'n D., £2/10/-, £2, £1. Also 188 at 5/-.
HANDWRITING: Section Infants, 2 at 10/-; S'n A., £1, 2 at 10/-; S'n B., £1, and 2 at 10/-; S'n C., £2, £1, 10/-; S'n D., £2/10/-, £2, £1. Also 200 at 5/-.

B. VICTORIA—
ESSAYS: S'n A., £1/10/-, £1, 10/-; S'n B., £1/10/-, £1, 10/-; S'n C., £2/10/-, £2, £1; S'n D., £2/10/-, £2, £1. Also 124 at 5/-.
HANDWRITING: Section Infants, 2 at 10/-; S'n A., £1, and 2 at 10/-; S'n B., £1, and 2 at 10/-; S'n C., £1/10/-, £1, 10/-; S'n D., £2/10/-, £2, £1. Also 138 at 5/-.

C. QUEENSLAND—
ESSAYS: S'n A., £1, 10/-; S'n B., £1, 10/-; S'n C., £1/10/-, £1, 10/-; S'n D., £1/10/-, £1, 10/-. Also 64 at 5/-.
HANDWRITING: Section Infants, 2 at 10/-; S'n A., 15/-, 10/-; S'n B., 15/-, and 2 at 10/-; S'n C., 2 at 15/-, 10/-; S'n D., £1/10/-, £1, 10/-. Also 64 at 5/-.

D. TASMANIA—
ESSAYS: S'n A., 10/-; S'n B., 10/-; S'n C., 15/, 10/; S'n D., 15/-, 10/-. Also 26 at 5/-.
HANDWRITING: Section Infants, 7/6; S'n A., 10/-, 7/6; S'n B., 10/-, 7/6; S'n C., 10/-, 7/6; S'n D., 15/-, 10/-. Also 23 at 5/-.

E. SOUTH AUSTRALIA—
ESSAYS: S'n A., 10/-; S'n B., 10/-; S'n C., £1, 10/-; S'n D., £1, 10/-. Also 54 at 5/-.
HANDWRITING: Section Infants, 10/-, 7/6; S'n A., 10/-, 7/6; S'n B., 15/-, 10/-; S'n C., £1, 10/-; S'n D., £1, 15/-. Also 45 at 5/-.

F. WESTERN AUSTRALIA—
ESSAYS: S'n A., 2 at 7/6; S'n B., 2 at 10/-; S'n C., 15/-, and 2 at 10/-; S'n D., £1, 2 at 10/-. Also 30 at 5/-.
HANDWRITING: Section Infants, 2 at 7/6; S'n A., 10/-, 7/6; S'n B., 10/-, and 2 at 7/6; S'n C., 15/-, 10/-, 7/6; S'n D., £1, 2 at 10/-. Also 26 at 5/-.

PRIZES: £90 for Junior Projects

NEW SOUTH WALES: 3 at £2; 5 at £1; 10 at 10/-; 76 at 5/-.
VICTORIA: 2 at £2; 4 at £1; 8 at 10/-; 52 at 5/-.
QUEENSLAND: 2 at £1; 6 at 10/-; 28 at 5/-.
SOUTH AUSTRALIA: 6 at 10/-; 20 at 5/-.
WESTERN AUSTRALIA: 4 at 10/-; 16 at 5/-.
TASMANIA: 2 at 10/-; 12 at 5/-.

See: Gifts to schools .. P.2
Competition rules . P.4
Project Competitions P.42

PRIZES: (1) For Lower Senior Projects £101/5/-

N.S.W.: 1 at £5, 1 at £4, 2 at £2, 4 at £1, 16 at 10/-, 44 at 5/-.
VIC.: 1 at £5, 1 at £4, 1 at £2, 3 at £1, 8 at 10/-, 32 at 5/-.
QLD.: 2 at £2, 2 at £1, 3 at 10/-, 22 at 5/-. **S.A.:** 1 at £2, 2 at £1, 2 at 10/-, 17 at 5/-.
W.A. 1 at £1, 4 at 10/-, 16 at 5/-. **TAS.:** 1 at £1, 2 at 10/-, 8 at 5/-.
Most Artistic Book Covers, N.S.W.: 2 at £1, 1 at 10/-. **Vic.:** 1 at £1, 1 at 10/-. **Qld.:** 2 at 10/-.
S.A: 1 at 10/- **W.A.:** 1 at 5/-. **Tas.:** 1 at 5/-.

PRIZES: (2) For Upper Senior Projects £101/5/-. Same as in above list

WHERE TO SEND YOUR COMPETITION ENTRY . . .

Send your entry to "The Commonwealth Trades Alphabet" addressed as hereunder for your State:—
N.B. Do not write to these addresses for literature for your project. Write to the firms advertising.

THE COMMONWEALTH TRADES ALPHABET
116 Mount St.,
NORTH SYDNEY

THE COMMONWEALTH TRADES ALPHABET
Box 715G G.P.O.,
HOBART, Tas.
or hand it in to
Hawker and Shadforth, 2 Davey Street, Hobart

THE COMMONWEALTH TRADES ALPHABET
C/- BRYCE LTD.,
157-163 Ann Street,
BRISBANE, Q'ld.

THE COMMONWEALTH TRADES ALPHABET
C/- Boans Ltd.,
Wellington and Murray Streets,
PERTH, W.A.

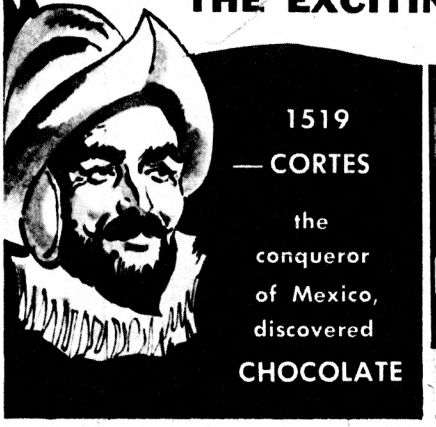
THE COMMONWEALTH TRADES ALPHABET
40 Pirie Street,
ADELAIDE, S.A.

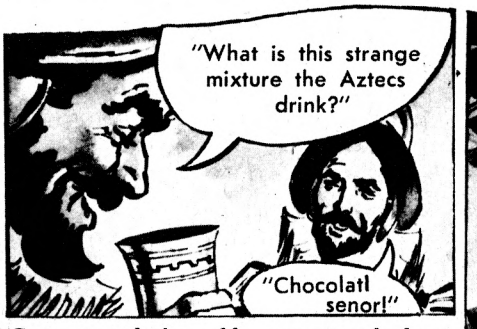
THE COMMONWEALTH TRADES ALPHABET
290 Latrobe Street,
MELBOURNE, Vic.

Before mailing your entry, be sure to write your particulars as requested in the rules on page 4.

1,000,000 copies printed for the publishers, "The Commonwealth Trades Alphabet Pty. Ltd.," 116 Mount Street, North Sydney, by Conpress Printing Ltd.

THE EXCITING STORY OF CONFECTIONERY



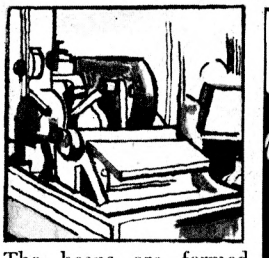


Cortes tasted the cold, unsweetened chocolate the Aztecs made from the crushed seeds of the cacao tree.

Returning ships brought the new drink to Europe . . .

Natives harvest the pods from the trees. From each pod comes 30-45 cocoa beans.

From Africa and New Guinea the beans come to the Mac.Robertsonland factory in Melbourne.

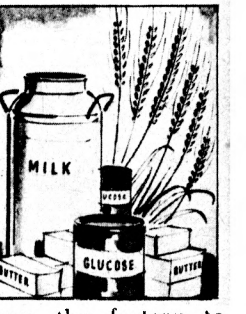


The beans are formed into a paste called "neatwork", mixed with sugar and milk, refined and blended in "conching" machines to make milk chocolate.

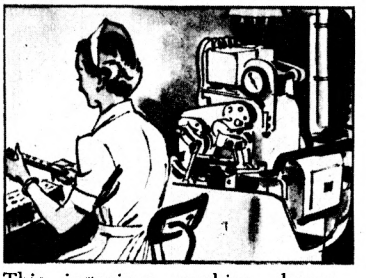
These fine ingredients all belong to Mac.-Robertsonland — the land of fabulous flavours.

In the 18th Century sugar was a luxury. In "Chocolate Shops" rich men enjoyed sugar in coffee.

Today everybody can afford sugar — especially in confectionery from Mac.Robertsonland. This sugar comes from Queensland.



From the factory to your tuckshop go delicious chocolates from Mac.Robertsonland, made from cocoa beans.



This ingenious machine shapes, cuts and wraps "Columbine" Caramels. The nimble-fingered operator has only to pop the "Columbines" into their famous packets.

Sugar sweets made by Mac.Robertson's in one year would make a one foot square stack almost 4 times as high as Mt. Everest (29,141 feet) — *everyone* loves them.

The many ingredients that go into Mac. Robertson's confectionery are not only delicious, they're nourishing, too — rich dairy butter, milk, glucose, honey and eggs from Australian farms; fruits from our finest orchards, and nuts from the far corners of the world. It's no wonder Mac. Robertson's confectionery gives you so much energy, helps build your bodies. Why not choose confectionery for your Trades Alphabet project? For excellent information for your competition entry write to "Project", c/o Mac. Robertson Pty. Ltd., Argyle Street, Fitzroy, Victoria.

MADE BY Mac Robertson *The Great Name in Confectionery*

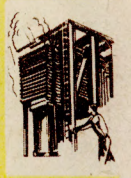
Plan your Project and Essay now. Entries close 1st October.

MASONITE is the wonder board
That you'll find everywhere,
Wherever you go you can be sure,
That Masonite is there.

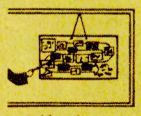
MASONITE

THE WONDER BOARD OF OVER 1,000 USES

The story of growing and harvesting trees



If you're a student of Botany, Geology, Woodwork, Geography, or of Social Studies, make your project on trees. Start it by writing for the free Masonite 24-page colour booklet . . . "From Forest to Home". You'll learn how trees are grown, harvested, converted into sheets of hardboard . . . sold and then used!



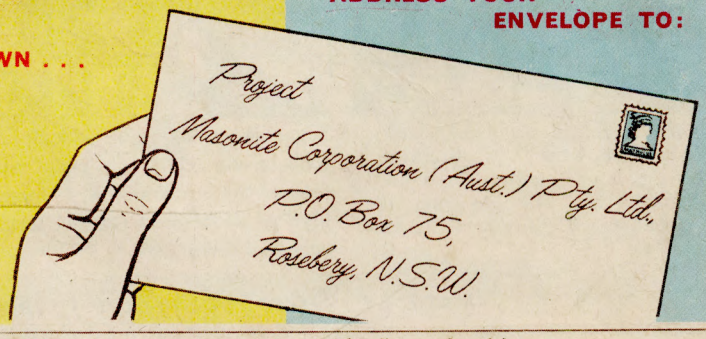
TEACHERS: Write now for a colourful free wall chart showing all stages in the manufacture of Masonite Hardboard.

WHEN YOU WRITE FOR YOUR FREE MASONITE BOOKLET PLEASE PUT DOWN . . .

(a) Your full name in block letters
(b) Your address, including State
(c) Your School
(d) Your age.

Teachers must sign the request for copies required by class groups. Please state average age of pupils.

ADDRESS YOUR ENVELOPE TO:



Plan your project or essay now. Write for further information to the firms advertising.